

The University of Chicago

THE DEVELOPMENT OF WRITTEN
EXPRESSION AMONG CHILDREN OF
ELEMENTARY-SCHOOL GRADES

A DISSERTATION SUBMITTED TO THE
GRADUATE FACULTY IN CANDIDACY FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF EDUCATION

By
WILLIAM CALVIN HOPPE

Private Edition, Distributed by
THE UNIVERSITY OF CHICAGO LIBRARIES
CHICAGO, ILLINOIS

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As will be readily apparent to the reader the investigator is greatly obligated to the Dixon School. The principal, Mr. Otto Schenk, showed a very stimulating and encouraging interest in the study by making it possible for the material to be collected from his school. The teachers also lent very substantial cooperation by adjusting their programs to provide for the necessary testing and composition lessons. The writer gladly acknowledges his indebtedness to Mr. Schenk and to the teachers of the Arthur Dixon School. He especially recognizes and appreciates the sincere effort and manifest good will of the children whose written work constitute the major portion of the material used in the study.

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CHAPTER I

THE PROBLEM

Much of the effort of the elementary school is devoted to the development of proficiency in the use of language. Universal literacy has so long been the ideal of American public schools that training in the use of language is taken for granted as the core of the curriculum for the elementary grades. No failure of the school is more readily recognized nor more severely condemned than failure to equip children with ability to read and with ability to express ideas in written form.

Among the notable contributions to the science of education have been the numerous studies in reading. Enough is known concerning the nature of the reading process, the nature of progress in learning the process, and the efficient procedures and practices in teaching to provide a highly respectable body of knowledge as a guide to the teaching of the subject.

The processes of language expression have been far less adequately studied. Aside from studies of variation from conventional forms, so-called "error" studies, comparatively few investigations have been directed to the problems concerning children's use of language as a tool of thought or as a medium for expressing thought. Most of the studies which have attacked these problems have been confined to the oral expression of young children of pre-school ages.

The present investigation is an attempt to discover some

of the significant characteristics of the development of written expression of typical public school pupils in the elementary school grades. More concretely stated the problem is, How does the written expression of children in the upper grades of the elementary school differ from that used in the lower grades? What is the nature of the development in written expression which occurs between the early stages of writing and the stage attained by sixth grade pupils?

Analysis of the problem yielded three phases of study which seemed capable of producing fruitful results. The first phase of the study to be presented is concerned with differences in the quantity of written expression at different age and grade levels. Some of the specific questions involved in this phase of the study are, How is increase in maturity of elementary school children in age, grade, and mental age related to amount of written expression? Is there a significant increase in the length of various types of sentences as children increase in maturity? How is the amount of expression influenced by the nature of the topic discussed? Data bearing upon the foregoing questions are presented in Chapter III.

The second phase of the present study is a comparison of certain features of sentence structure at different levels of maturity. The specific questions considered are the following. How do the proportions of different types of sentences, simple, complex, compound, and complex-compound, vary with increase in maturity of the writers? How do the

proportions of different types of clauses, noun, adjective, and adverbial, vary with increase in maturity of the writers? To what extent does the written expression of children reveal evidence of the development of sentence sense during the elementary school ages? Data relating to the questions just stated are presented in Chapter IV.

In addition to the gross elements of sentence structure which lend themselves to statistical analysis, there are other aspects of the form in which sentences are expressed that are related to the main problem. To what extent is there a tendency in the written expression of children for certain words, groups of words, or other forms to be unduly repeated? What is the nature of the recurring forms? When does the use of inverted order of subject and predicate develop? Is there a significant development in the use of participial phrases during the elementary school ages? To what extent do children combine unrelated propositions in one compound sentence? How adequately do children control the position of modifiers in their written expression? The evidence bearing upon the questions raised is presented and discussed in Chapter V.

A third phase of the problem is concerned with differences in certain aspects of the content of compositions written by pupils at different degrees of maturity. The particular aspects of content considered may be indicated in the following specific questions. Does the writing of children of different ages show any variation in the degree of ego-centrism of the writers? What evidence do the compositions of children reveal

concerning the apprehension of particular words? Is there a significant difference in the degree of generality of meaning of words used by children of differing degrees of maturity? The questions concerning maturity of content in the written expression of children are discussed in Chapter VI.

A summary of results is presented in Chapter VII. In the final chapter the conclusions and implications which seem to be justified by the data available are also discussed.

CHAPTER II

SOURCES OF DATA

The material used in the present study was secured from the pupils in grades III, IV, V, and VI of the Arthur Dixon School of Chicago, from pupils in the same grades of the University of Chicago Elementary School, and from letters of adults published in two representative daily newspapers. The materials consisted in samples of written expression and certain test records which were used as a basis for characterizing the writers of the major portion of the compositions, and as a basis for classifying certain data.

Subjects From Whom Data Were Secured

The number of persons from whom material was collected for the investigation is presented in Table I.

TABLE I
NUMBER OF PERSONS FROM WHOM SAMPLES OF
WRITTEN EXPRESSION WERE COLLECTED

Writers	Sex	III	IV	V	VI	Total
Dixon School	M	40	43	50	52	185
	F	48	50	42	43	183
University School	M	26	20	34	28	108
	F	25	32	33	33	123
Adults	M	..	..	..	..	126
	F	..	..	..	..	160

The general character of the children of the Dixon school in such respects as, social and economic status of

parents, language environment of the home, and educational value of experience outside the school, cannot be accurately defined. Repeated observation of the children, however, suggested that their economic status was at least equal to self-respecting comfort. The social standards and ideals of the community suggested by the appearance and conduct of the children would seem to be entirely in harmony with those represented by an intelligently directed school itself.

Corroboration of the impression gained from personal observation was found in a number of facts revealed in the children's writing. A large number of the children referred to automobile trips taken with their parents, to experiences in summer camps, to trips to the Field Museum, to the Art Institute, to the Municipal Airport, and to various other places of interest. References to play activities indicate that the children under consideration have enjoyed varied and wholesome experiences in play. The range of their opportunities for play may be roughly indicated by the fact that almost every type of children's game or sport was mentioned. In fact, participation in such play activities as golf and horseback riding was mentioned quite more frequently than might be expected.

Certain concrete facts may be cited to indicate the general ability of the children. Table II presents the mean chronological age, mean mental age, and mean reading age of boys and of girls in grades III to VI inclusive.

TABLE II

MEAN CHRONOLOGICAL AGE, MENTAL AGE, AND READING
AGE OF BOYS AND OF GIRLS IN GRADES III,
IV, V, AND VI OF THE DIXON SCHOOL

Age	Sex	III	IV	V	VI
Chrono- logical	Boys	8-8	9-7	10-9	11-8
	Girls	8-7	9-7	10-7	11-5
Mental	Boys	10-0	10-4	10-6	12-3
	Girls	9-9	10-1	11-1	12-7
Reading	Boys	9-10	10-10	11-5	12-7
	Girls	9-11	10-11	11-10	12-11

The facts presented in the table exhibited above indicate that the mean chronological ages increase from grade to grade by eleven to thirteen months. In all four grades the mean mental ages and mean reading ages of both boys and girls exceed the chronological ages.

Data Secured

The test records from which Table II was compiled were secured from the Otis Group Intelligence Scale and from the New Stanford Reading Test. One additional test was devised specifically for use in the present study. A copy of this test is reproduced in Chapter VI.

The testing and writing of the compositions were done in the Dixon school between February 18 and May 8, 1930. The compositions from the University Elementary School were secured during the week, February 17-20, 1931, and the letters of adults were secured between January 19, and April 20, 1931. The thousand sentences written by men, however, were secured by February

19, 1931.

Although all the children in grades three to six inclusive of the Dixon school participated in the investigation, complete test records and compositions on all seven of the topics used were secured from only 255 pupils. Since 113 additional pupils had complete test records and wrote compositions on six of the seven topics, they were included in the study. The material from the Dixon school, then, consisted in test records on the tests previously mentioned, seven compositions from each of 255 children, and six compositions from each of 113 children. Among the latter number the missing compositions were distributed among the seven series of compositions as follows; series 1, 6; series 2, 13; series 3, 15; series 4, 12; series 5, 12; series 6, 24; series 7, 31. The total number of compositions from the Dixon school was 2463.

The children of the University Elementary school wrote on only one topic, "My Favorite Game or Sport." These papers were secured to provide a basis for comparison with the papers on the same topic from the Dixon school. The number of papers, of course, corresponds to the number of writers, 231.

The writing of adults, as found in letters contributed to newspapers, was devoted, of course, to the discussion of a wide variety of topics. The range of topics may be fairly indicated by mentioning two extremes. One writer contributed the following: "Hooray, spring is here! Saw a robin early this morning. No wonder, with these fine days we are having!" Another letter was a discussion of the League of Nations

written by a reputable historian. Many letters were discarded because it was not possible to know either from the signature or from the content whether the writer was a man or a woman. The letters written by adults, then, conformed to three conditions or characteristics; (1) the sex of the writer could be identified, (2) the letters were published either in "The Voice of the People" of the Chicago Tribune or in "Views on Many Topics" of the Chicago Daily News, (3) the letters were published between January 19 and April 20, 1931.

The total number of sentences written by each of the three groups and used in the present study is presented in Tables III, IV, and V.

TABLE III

NUMBER OF SENTENCES OF EACH TYPE WRITTEN BY BOYS
AND BY GIRLS OF THE DIXON SCHOOL

Type of Sentence	Sex	III	IV	V	VI	Total
Simple	Boys	622	736	922	1,097	3,377
	Girls	1,083	1,164	925	948	4,120
Complex	Boys	337	458	619	820	2,234
	Girls	525	831	746	903	3,005
Compound	Boys	121	140	180	213	654
	Girls	186	220	201	239	846
Complex-Compound	Boys	75	129	170	247	621
	Girls	109	190	190	266	755
All Types	Boys	1,155	1,463	1,891	2,377	6,886
	Girls	1,903	2,405	2,062	2,356	8,726
Total		.....	.....	.....	.....	15,612

TABLE IV

NUMBER OF SENTENCES OF EACH TYPE WRITTEN BY BOYS AND
BY GIRLS OF THE UNIVERSITY ELEMENTARY SCHOOL

Type of Sentence	Sex	III	IV	V	VI	Total
Simple	Boys	114	39	120	85	358
	Girls	123	105	157	106	491
Complex	Boys	37	27	77	73	214
	Girls	30	36	77	112	257
Compound	Boys	8	5	22	15	50
	Girls	7	13	37	35	92
Complex-Compound	Boys	8	6	21	18	53
	Girls	9	12	24	30	75
All Types	Boys	167	77	240	191	675
	Girls	169	166	295	283	915
Total		...	...	...	...	1,590

TABLE V

NUMBER OF SENTENCES OF EACH TYPE WRITTEN
BY MEN AND BY WOMEN

Type of Sentence	Men	Women
Simple.....	409	409
Complex.....	428	419
Compound.....	65	67
Complex-Compound.....	98	105
All Types.....	1,000	1,000

Composition Subjects

The compositions which supplied the essential data for the study were written on the topics and on the dates listed below.

Series 1. My Favorite Game or Sport..... February 25
Series 2. The Most Exciting Ride I Ever
Had..... March 10

Series 3.	The Most Interesting Place in Chicago.....	March 17
Series 4.	Two Sides to a Question.....	March 24
Series 5.	The Rest of the Tale.....	April 7
Series 6.	My Discovery.....	April 14
Series 7.	A Letter.....	May 5-8

The meaning and implications of the first three topics are sufficiently self-evident to require no further discussion. The remaining four topics require some explanation.

It seemed desirable to secure samples of writing requiring more than simple expression of a personal preference or relating an incident. For series 4 the following statements were presented with instructions to be prepared a week later to write on one or both sides of any one of the "questions" chosen.

1. Everybody should learn to swim.
2. Girls should play out-of-doors as much as boys.
3. Carrots and candy are good for the health.
4. Summer is better than winter.
5. Reading is more valuable than arithmetic.
6. There should be a fire drill every week.
7. All written work should be done in ink.
8. There should be some men teachers in our school.

The suggested topics for series 6 were also given to the children one week in advance of the time of writing. The children were specifically urged to seek information concerning the question selected and to be prepared to state the facts necessary to make a clear explanation of the "discovery." Interest in this series seemed to be peculiarly keen, because it was so easy to demonstrate to the children that their information concerning some of the questions was exceedingly meager. For example, from one-third to one-half of the pupils indicated during the preliminary discussion of the questions that they

thought that ice sinks in water.

The following questions were used to stimulate the children to make a "discovery" of some facts that they did not know but that they would like to know.

1. Why does ice float and not sink?
2. Why do the coldest days come in January or February and the hottest in July or August?
3. What keeps an airplane in the air?
4. How does a vacuum bottle keep hot food hot, or cold food cold?
5. What is done to milk when it is pasteurized?
6. What makes a clock tick?
7. Why do diamonds cost so much more than glass?
8. Why must an automobile have a license?

The topics of the fifth series were designed to stimulate imagination and induce the writers to produce good stories. The pupils were told to select one of the "starters for stories" and to develop whatever suggestion it made to them. They were definitely told that their story need not be true to fact, that their fancy might have free play.

The key-sentences suggested for series 5 of the compositions were the following.

1. Mother said that she would be gone only a minute.
2. I thought the water was only knee-deep when I started to wade.
3. Uncle Ben had promised us a horseback ride.
4. Daddy said that we might get out of the car while he changed a tire.
5. I thought all berries were good to eat.
6. Mother had told me to look both ways before crossing the street.
7. I heard the doctor say, "....in bed for a week."
8. All baby animals are interesting.

The final series of compositions was a letter addressed to the investigator in reply to one which he wrote and sent to each room participating in the investigation. The children's

letters gave abundant evidence that the writers accepted the situation in good faith and thought that they were writing a real letter, as indeed, they were.

A copy of the letter sent to the children follows.

May 5, 1930

Dear friends of the Dixon school:

For several weeks you have been taking tests and writing compositions for me. You have done all this work so cheerfully and so well that I feel I should like to come out to visit you at school every week as long as I am in Chicago. But you have already given me so many papers that it will take all summer for me to study them to find out just how boys and girls put their ideas together in the compositions they write. Consequently I shall not be able to visit you any more. I think that is too bad for me.

I am writing this letter to thank you for the work you have done for me. I am sure that everyone has tried hard to do just what I asked him to do. I appreciate the good work you have done and the cheerful spirit in which you did it. Thank you many times for the help you have given me.

I hope that everyone had a pleasant vacation last week. I had to study and go to school every day. Many times I thought about what a happy time you must be having with nothing to do but play. I cannot quite imagine what so many boys and girls could do in Chicago to enjoy their vacation. If you lived in the country, I know that the boys would go fishing and the girls would have to stay at home and help mother clean house. In Chicago it may be that the boys have to help with the housecleaning while the girls go to the movie. I wish I knew what all of you did last week.

Sincerely yours,

W. C. Hoppes

No doubt a more satisfactory sampling of children's written expression could be secured than that produced by the topics used in the present investigation. If conditions had been favorable for securing written discussion of topics in one or more of the content subjects, those discussions might

have proved more satisfactory than the papers written on the topics of series 4 and 6, even though the topics would have been different in the different grades. Since, however, the children seemed to show no less interest in the topics requiring expository writing than in those of a more familiar type, it may be assumed that the papers written on the topics of series 4 and 6 are a fair sampling of the type.

The topics for each series of compositions were presented to the children by the investigator and the children knew that the writing was not a regular school task. They responded, however, with a very genuine enthusiasm, as the content of the letters, as well as other evidence shows.

The investigator tried faithfully to present the topics as a competent teacher might be expected to do. All suggestions and stimulation used were very general in character so that the content and organization of the composition would be as individual and characteristic of the writer as possible. The teachers took no part in the work of securing the compositions except to spell words for those children who asked for spelling. Furthermore, the teachers were entirely unaware of the purpose of the investigation; consequently any effort at teaching during the period in which the papers were secured could not have affected in any consistent and systematic way the results obtained.

The data to be presented in succeeding chapters are derived from 15,612 sentences written on seven different topics by 368 children of a Chicago public elementary school, 1,590

sentences written on one topic by 231 children of the University of Chicago Elementary school and 2,000 sentences written on a wide variety of topics by 126 men and 160 women.

CHAPTER III

AMOUNT OF WRITING

Two simple measures of amount of expression were made: number of sentences written and length of sentences. In this chapter the data on differences in amount of expression at different levels of maturity are presented. The data on differences in amount written on different topics and between two schools on the same topic are also presented.

Number of Sentences

All sentences were classified as simple, complex, compound, or complex-compound, and the number of words in each sentence was recorded. The papers from the Dixon school were grouped for tabulation of data on three different bases according to different measures of maturity of the writers. The three bases were school grade, chronological age, and mental age.

The mean number of each type of sentence written by boys and by girls of the Dixon school and classified by school grade is presented in Table VI.

In all cases the mean number of sentences per child written in a given grade is greater than the number written in the next lower grade except in the case of the simple sentences of girls in grades V and VI. Apparently the number of simple sentences required by the girls in all grades to express their ideas on all the seven topics treated did not exceed 22 or 23

as an average. The total increase in the amount of writing of the girls is in complex and compound types of sentences, whereas the boys show a steady increase from grade to grade in the number of simple sentences as well as in the other types.

TABLE VI

MEAN NUMBER OF SENTENCES OF EACH TYPE WRITTEN BY BOYS AND BY GIRLS IN GRADES III, IV, V, AND VI OF THE DIXON SCHOOL

Type of Sentence	Sex	III	IV	V	VI
Simple	Boys	15.6	17.1	18.4	21.5
	Girls	22.6	23.3	22.0	22.0
Complex	Boys	8.4	10.7	12.4	16.1
	Girls	10.9	16.6	17.8	21.0
Compound	Boys	3.0	3.3	3.6	4.2
	Girls	3.9	4.4	4.8	5.6
Complex-Compound	Boys	1.9	3.0	3.4	4.8
	Girls	2.3	3.8	4.5	6.2
All Types	Boys	28.9	34.0	37.8	46.6
	Girls	39.6	48.1	49.1	54.8

The differences in the number of sentences of each type written by boys and the number written by girls is in most instances greater than the difference between any two consecutive grades of boys or of girls. Otherwise stated the number of sentences of any type written by the boys of a given grade more nearly approximates the number written by girls of the next lower grade than of the same grade. In the total number of sentences written the girls of the third grade are superior to the boys of the fifth, and the girls of the fourth grade are superior to the boys of the sixth. In the number of complex sentences the girls are superior to the boys in all grades by

approximately 25 per cent or more.

Typical differences in the total number of sentences written are the differences between those written by the fourth and fifth grade boys and between those written by the fifth and sixth grade girls. In the case of the boys the difference is 2.5 times its probable error; in the case of the girls the ratio is still greater, the difference being 2.9 times its probable error. From the facts just cited, it is evident that the grade differences are significant.

Similar evidence establishes the sex differences. The difference in total number of sentences written by girls and the number written by boys in the fifth grade is 11.3 sentences. This difference is 5.8 times its probable error. Since the amount of sex differences in other grades is similar to that in the fifth grade, there can be no doubt that the girls wrote appreciably more than did the boys.

In Tables VII and VIII are presented mean numbers of sentences written by pupils of various chronological and mental ages. The means are derived from the same data as those shown in Table VI. The evidence of both supplementary classifications corroborates that of the grade classification. The irregularities in mean number of sentences written by girls at 12 to 12-11 chronological age and at 7-6 to 8-5, and at 13-6 or above, mental age can be readily accounted for by the small number of cases in each of these classifications. The numbers were as follows: 12 to 12-11 chronological age, 8; 7-6 to 8-5 mental age, 5; 13-6 or above, mental age, 13.

TABLE VII

MEAN NUMBER OF SENTENCES OF EACH TYPE WRITTEN BY BOYS AND BY GIRLS AT EACH YEAR OF CHRONOLOGICAL AGE, 8 TO 12 INCLUSIVE

Type of Sentence	Sex	8 to 8-11	9 to 9-11	10 to 10-11	11 to 11-11	12 to 12-11
Simple	Boys	16.5	16.9	19.0	19.9	20.6
	Girls	21.5	25.1	23.0	21.4	15.9
Complex	Boys	10.1	10.3	12.7	13.1	17.5
	Girls	12.1	16.3	19.8	19.2	14.1
Compound	Boys	2.8	3.2	3.8	4.1	4.2
	Girls	4.2	4.3	4.7	5.5	4.0
Complex-Compound	Boys	2.2	2.6	3.4	4.5	4.3
	Girls	2.4	3.8	4.6	5.8	4.6
All Types	Boys	31.6	33.1	38.9	41.6	46.7
	Girls	40.1	49.5	52.1	51.9	38.6

TABLE VIII

MEAN NUMBER OF SENTENCES OF EACH TYPE WRITTEN BY BOYS AND BY GIRLS AT EACH YEAR OF MENTAL AGE, 7-6 TO 13-6 INCLUSIVE

Type of Sentence	Sex	7-6 to 8-5	8-6 to 9-5	9-6 to 10-5	10-6 to 11-5	11-6 to 12-5	12-6 to 13-5	13-6 or Above
Simple	Boys	12.5	14.7	16.4	19.5	21.0	20.8	24.7
	Girls	24.0	21.3	21.1	23.0	24.8	24.5	22.1
Complex	Boys	7.0	10.1	9.9	13.3	13.8	14.6	18.9
	Girls	19.2	12.2	13.9	16.7	18.8	22.6	22.5
Compound	Boys	2.6	2.7	3.5	4.0	3.9	2.9	5.0
	Girls	3.8	3.5	4.4	4.9	5.8	5.7	4.4
Complex-Compound	Boys	3.7	2.0	2.9	3.5	3.7	4.1	5.8
	Girls	4.6	2.3	3.5	4.8	5.4	5.9	4.2
All Types	Boys	25.8	29.5	32.7	40.2	42.4	42.4	54.4
	Girls	51.6	39.3	42.9	49.4	54.8	58.8	53.2

On the basis of the evidence presented in the three tables, VI, VII, and VIII, it appears that the more advanced

children, in chronological age, mental age, and in school grade, write more on the same subjects than do the less advanced. Girls write more of each type of sentence than do boys of the same age or grade level.

Reading the children's papers gave evidence clearly corroborating one inference to be drawn from the objectively determined facts concerning the correspondence of increase in amount of writing and increase in various measures of maturity, i.e. school grade, chronological age, and mental age. That inference is that fluency of written expression is considerably retarded in the lower grades by limited ability in handwriting, in spelling, and in the use of other expressional devices peculiar to writing. It is also a reasonable inference that comparative unfamiliarity with numerous forms and varieties of language structure impose additional inhibitions on the young writer's fluency of expression. To determine the optimum amount of emphasis to be placed upon the various aspects of the mechanics of writing in the early stages of learning to write in relation to the emphasis upon the content and organization of composition would be a contribution of considerable importance to language teaching in the lower elementary grades. It should be possible to arrange experimental conditions in which relative fluency of oral and of written expression could be determined.

Length of Sentences

The second measure of quantity of expression used was

length of sentence. The number of words in each sentence was used as the measure of length. The mean number of words for each type of sentence is presented in Table IX.

TABLE IX

MEAN NUMBER OF WORDS IN EACH TYPE OF SENTENCE WRITTEN BY BOYS AND BY GIRLS IN GRADES III, IV, V, AND VI OF THE DIXON SCHOOL

Type of Sentence	Sex	III	IV	V	VI
Simple	Boys	7.34	7.63	7.85	8.47
	Girls	7.38	7.95	7.94	8.32
Complex	Boys	12.80	13.88	12.99	14.08
	Girls	11.81	12.95	13.30	14.15
Compound	Boys	14.84	13.84	14.28	15.05
	Girls	13.79	14.64	13.44	14.40
Complex-Compound	Boys	23.01	23.62	22.25	23.14
	Girls	20.26	22.53	22.26	21.64

The figures of Table IX indicate clearly that there is a slight increase in length of each type of sentence in most grade groups over the preceding grades. Five of the seven exceptions occur in the fifth grade.

The data presented in Table II showed that the differences between the fourth and fifth grade girls in chronological age, mental age, and reading age are perfectly consistent and vary little if any from the expected amount of difference. That is, the mean of the fifth grade group is one year greater than the mean of the fourth. The failure of the sentences written by the fifth grade girls to show an increase in length over those written in the fourth grade cannot be ascribed to relative immaturity as indicated by either chronological age,

mental age or reading age. The data of Table II do indicate that the boys of the fifth grade are somewhat less than a year more mature in mental age and in reading age than the boys of the fourth grade. If, however, mental age or reading age were peculiarly significant factors in determining the length of sentences the decrease in the mean length of sentences of the fifth grade boys should be greater than in the case of the girls, whereas the reverse is true. Evidently some unknown factor in the fifth grade group, particularly among the girls produces a noticeable deflection in the trend of length of sentences.

Tables X-XIII present the essential data bearing upon the significance of the differences in length of sentences. The most conspicuous fact revealed in the tables is the wide variation in the ratios between the differences of the means and the probable errors of the differences. The evidence would suggest that length of compound and complex-compound sentences bears no consistent relationship to the school grade of the writer. In no case does the difference between third and

TABLE X

GRADE DIFFERENCES IN MEAN LENGTH OF SIMPLE SENTENCES						
Grades Compared	Boys			Girls		
	Diff.	P.E.	Diff. P.E.	Diff.	P.E.	Diff. P.E.
M _{IX} - M _{III}	0.29	0.12	2.42	0.57	0.08	7.12
M _V - M _{IV}	0.22	0.11	2.00	-0.01	0.10	-0.10
M _{VI} - M _V	0.62	0.11	5.64	0.38	0.11	3.46
M _V - M _{III}	0.51	0.12	4.25	0.56	0.10	5.60
M _{VI} - M _{IV}	0.84	0.11	7.64	0.37	0.10	3.70

TABLE XI

GRADE DIFFERENCES IN MEAN LENGTH OF COMPLEX SENTENCES

Grades Compared	Boys			Girls		
	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
M _{IV} - M _{III}	1.08	0.30	3.60	1.14	0.17	6.71
M _V - M _{IV}	-0.89	0.25	-3.56	0.35	0.17	2.06
M _{VI} - M _V	1.09	0.21	5.19	0.85	0.18	4.72
M _V - M _{III}	0.19	0.27	0.70	1.49	0.18	8.28
M _{VI} - M _{IV}	0.20	0.24	0.83	1.20	0.17	7.06

TABLE XII

GRADE DIFFERENCES IN MEAN LENGTH OF COMPOUND SENTENCES

Grades Compared	Boys			Girls		
	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
M _{IV} - M _{III}	-1.00	0.43	-2.33	0.85	0.33	2.58
M _V - M _{IV}	0.44	0.41	1.07	-1.20	0.30	-4.00
M _{VI} - M _V	0.77	0.38	2.03	0.96	0.29	3.31
M _V - M _{III}	-0.56	0.42	-1.33	-0.35	0.30	-1.17
M _{VI} - M _{IV}	1.21	0.39	3.10	-0.24	0.31	-0.77

TABLE XIII

GRADE DIFFERENCES IN MEAN LENGTH OF COMPLEX-COMPOUND SENTENCES

Grades Compared	Boys			Girls		
	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
M _{IV} - M _{III}	0.61	0.84	0.73	2.27	0.58	3.91
M _V - M _{IV}	-1.37	0.64	-2.14	-0.27	0.57	-0.47
M _{VI} - M _V	0.89	0.57	1.56	-0.62	0.53	-1.17
M _V - M _{III}	-0.76	0.81	-0.94	2.00	0.57	3.51
M _{VI} - M _{IV}	0.48	0.62	-0.77	-0.89	0.54	-1.65

fifth grade or between fourth and sixth equal four times the probable error. In two cases only does the difference exceed three times the probable error. The computations, however, are made on 75 to 266 sentences in a grade. The erratic trends of the means may, therefore, be due to an insufficient

number of cases.

The ratios showing the reliability of the differences in length of simple and of complex sentences are in general both larger and more consistent than they are in the case of compound and complex-compound sentences. From the standpoint of consistency the best examples appear to be in the increase from grade to grade in length of simple sentences written by boys and of complex sentences written by girls. In these two groups of comparisons, however, the differences between consecutive grades in three of the six comparisons are of doubtful significance. These three are the differences between boys' simple sentences in third and fourth grades and in fourth and fifth grades, and between girls' complex sentences in fourth and fifth grades. The remaining three comparisons show substantial differences. In all cases in which comparison is made between third and fifth grades and between fourth and sixth the differences appear to be significant except in the complex sentences of boys.

The data relating to the significance of sex differences in length of sentences are given in Table XIV.

TABLE XIV

SEX DIFFERENCES IN THE MEAN LENGTH OF EACH TYPE OF SENTENCE

Type of Sentence	Sex Groups Compared in Percentage Frequency	III			IV		
		Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
Simple	$M_G - M_B$	0.04	0.11	0.36	0.32	0.10	3.20
Complex	$M_G - M_B$	-0.99	0.26	-3.81	-0.93	0.23	-4.04
Compound	$M_G - M_B$	-1.05	0.39	-2.69	0.80	0.38	2.11
Complex-Compound	$M_G - M_B$	-2.75	0.80	-3.44	-1.09	0.63	-1.73

TABLE XIV (continued)

Type of Sentence	Sex Groups Compared in Percentage Frequency	V			VI		
		Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
Simple	$M_G - M_B$	0.09	0.11	0.82	-0.15	0.11	-1.36
Complex	$M_G - M_B$	0.31	0.20	1.55	0.07	0.19	0.37
Compound	$M_G - M_B$	-0.84	0.34	-2.47	-0.65	0.33	-1.97
Complex-Compound	$M_G - M_B$	0.01	0.58	0.02	-1.50	0.52	-2.88

Apparently boys write longer complex, compound, and complex-compound sentences in the third grade than do the girls, although the probability is substantially less than certainty. In the fourth grade the girls appear to write longer simple sentences than the boys, whereas the boys write longer complex sentences than the girls. In the fifth and sixth grades all differences appear to be insignificant. In view of the conspicuous inconsistency of the ratios for the different grades it is doubtful whether any of the sex differences indicated have any significance.

From the data on length of sentences it seems justifiable to conclude that the children whose written expression was analyzed write somewhat longer sentences of the simple and complex types as they progress through the grades of the elementary school. The data available do not indicate any significant increase in length of compound and complex-compound sentences between the third and sixth grades. Sex differences in length of sentences seem to be of doubtful significance.

The increase in length of sentences written by the older children as compared with those written by the younger children

suggests both an enlarged capacity for conceiving the proposition to be stated in a sentence and an increased refinement in the proposition conceived. Manifestly the longer sentence, particularly the simple or complex type which showed the significant development in length, represents a larger conception in some particular than the shorter sentence, assuming, of course, the equivalence of other factors. The assumption of equivalence of other factors seems to be justified by the number of sentences analyzed and by the fact that all children wrote on the same subjects.

Although the difference in length of sentences written by children in the sixth grade as compared with those written by children in the third grade was only one or two words, that difference was shown to be statistically significant and it is believed to be psychologically significant as well. The additional one or two words in a sentence provide very considerable opportunity for refinement, qualification, and elaboration of ideas. A one word modifier in many particular instances may have little significance, but in general a modifier of the subject, predicate, object, or any other member of the sentence is a modifier in some degree of some portion of the proposition stated.

Evidence indicating that the older children do use modifiers of the subject more extensively than do the younger children was found in a classification of the subjects of all simple sentences in the letters. The sixth grade boys used single word subjects in 83 per cent of their sentences, whereas, the third

grade boys used single word subjects in 88 per cent of their sentences. The corresponding percentages for the girls were 88 and 94.

The difference in length of sentences written by adults and those written by children was very great in both simple and complex sentences. Although it would be expected that adults would be capable of conceiving much more highly elaborated and qualified propositions than would children in the elementary school, there is at least one additional factor which may have contributed to the greater length of the adult sentences. The adults had every opportunity to revise and rewrite their statements, whereas the children's sentences were collected in the form in which they were originally written. Both willingness and ability to criticize and reconstruct sentences were, therefore, factors which did not affect the children's compositions except as they were exercised during the process of writing. A detailed analytical study of the nature of the growth in length of sentences written by the same children during their elementary school career would very probably provide significant information.

Variation Among Different Topics

It has already been pointed out that chronological age, mental age, reading age, and school grade are factors related to the number and length of sentences written on a number of different topics. To what extent the nature of the topic affects the amount of written expression remains to be considered. Data relating to the question are presented in Tables XV-XX.

TABLE XV

MEAN NUMBER OF SENTENCES WRITTEN ON DIFFERENT TOPICS
BY BOYS IN GRADES III, IV, V, AND VI AND BY MEN

Writers	Topic Number	III	IV	V	VI	Men
University Dixon	1	7.0	3.9	7.1	6.8	...
	1	6.6	6.2	8.0	8.2	...
	2	4.7	5.2	6.8	8.3	...
	3	4.2	7.1	5.1	6.5	...
	4	2.8	2.5	4.2	4.7	...
	5	4.5	5.3	6.1	8.7	...
	6	3.1	4.0	3.4	4.4	...
Adults	7	4.5	5.8	5.6	6.8	...
	Misc.	...	...	...	...	7.9

TABLE XVI

MEAN NUMBER OF SENTENCES WRITTEN ON DIFFERENT TOPICS
BY GIRLS IN GRADES III, IV, V, AND VI AND BY WOMEN

Writers	Topic Number	III	IV	V	VI	Women
University Dixon	1	6.8	5.3	8.9	8.6	...
	1	9.4	7.2	8.2	8.2	...
	2	6.2	7.4	8.3	10.2	...
	3	6.1	9.0	7.0	7.8	...
	4	4.0	4.6	5.5	5.7	...
	5	6.5	8.5	10.6	12.2	...
	6	3.5	5.6	4.1	5.2	...
Adults	7	5.4	8.2	7.2	7.2	...
	Misc.	...	...	...	...	6.3

TABLE XVII

MEAN NUMBER OF SIMPLE SENTENCES WRITTEN ON DIFFERENT TOPICS
BY BOYS IN GRADES III, IV, V, AND VI AND BY MEN

Writers	Topic Number	III	IV	V	VI	Men
University Dixon	1	4.4	2.0	3.5	3.0	...
	1	3.6	3.0	4.3	4.0	...
	2	2.8	2.3	3.7	3.6	...
	3	2.8	4.4	3.0	3.7	...
	4	1.2	0.5	1.5	2.0	...
	5	1.8	2.3	2.5	3.8	...
	6	1.3	1.8	1.0	1.3	...
Adults	7	2.8	3.8	3.1	3.5	...
	Misc.	...	...	...	...	3.2

TABLE XVIII

MEAN NUMBER OF SIMPLE SENTENCES WRITTEN ON DIFFERENT TOPICS
BY GIRLS IN GRADES III, IV, V, AND VI AND BY WOMEN

Writers	Topic Number	III	IV	V	VI	Women
University Dixon	1	4.9	3.3	4.8	3.2	...
	1	6.1	3.9	3.9	3.7	...
	2	3.6	3.4	3.9	4.3	...
	3	4.1	4.5	3.7	3.4	...
	4	1.9	1.7	2.3	1.9	...
	5	3.1	3.6	4.1	4.5	...
	6	1.5	2.4	1.2	1.7	...
Adults	7	3.0	4.8	3.9	3.4	...
	Misc.	...	...	...	...	2.6

TABLE XIX

MEAN NUMBER OF COMPLEX SENTENCES WRITTEN ON DIFFERENT TOPICS
BY BOYS IN GRADES III, IV, V, AND VI AND BY MEN

Writers	Topic Number	III	IV	V	VI	Men
University Dixon	1	1.4	1.4	2.3	2.6	...
	1	1.7	2.0	2.4	2.5	...
	2	.9	1.7	1.7	2.7	...
	3	.8	1.7	1.5	2.1	...
	4	1.2	1.5	2.1	1.9	...
	5	1.7	1.7	2.0	2.9	...
	6	1.2	1.3	1.6	2.3	...
Adults	7	1.4	1.3	1.4	1.9	...
	Misc.	...	...	...	...	3.4

TABLE XX

MEAN NUMBER OF COMPLEX SENTENCES WRITTEN ON DIFFERENT TOPICS
BY GIRLS IN GRADES III, IV, V, AND VI AND BY WOMEN

Writers	Topic Number	III	IV	V	VI	Women
University Dixon	1	1.2	1.2	2.3	3.4	...
	1	1.8	2.3	3.0	2.6	...
	2	1.4	2.4	2.6	3.4	...
	3	1.3	3.0	2.3	3.4	...
	4	1.5	2.0	2.2	2.8	...
	5	2.2	3.1	4.1	4.8	...
	6	1.5	2.2	2.3	2.3	...
Adults	7	1.6	2.5	2.1	2.5	...
	Misc.	...	...	...	...	2.6

Since the trend in the number of compound and complex-compound sentences written in all of the seven series of compositions in the different grades is quite consistent with that shown by the number of simple and complex types, only the latter are presented for comparison among the different series of compositions.

Four different comparisons may be made of the data in Tables XV-XX: (1) children with adults, (2) boys with girls, (3) different grades of children, (4) children of two different schools, and (5) different topics.

There is a striking similarity in the total number of sentences written by boys of the fifth and sixth grades on the most productive topic, "My Favorite Game or Sport," series 1, and the number written by men. The same observation is true to only a slightly less degree in the number of simple sentences. The men write a somewhat larger number of complex sentences. It is to be expected of course that adults would organize their ideas in complex patterns to a greater extent than would ten- and eleven-year-old children. Viewed from the great difference in experience of adults and of elementary school children the differences in amount of expression are surprisingly small. Of course it must be admitted that the situations under which the writing of the children was done was very different from that under which the adults wrote. Furthermore, the amount of editing which may have been done to the adults' letters is not known. For the two reasons just mentioned, it does not seem justifiable to pursue the comparison

very far.

Since sex differences in the number of sentences written have already been discussed on the basis of the seven series of compositions, it seems unnecessary to make the comparison on the smaller sampling of each series except to observe the consistency of the differences already pointed out in an earlier paragraph. In all grades on all subjects in both the Dixon and the University schools the mean number of all sentences written by girls exceeds the mean number written by boys. The same is true of the number of simple sentences except in five instances, fifth and sixth grades of the Dixon school in series 1, and sixth grade in series 3, 4, and 7. In number of complex sentences the means for University boys were slightly greater than those of the girls in grades three and four, and equivalent in grade five. These differences, however, are insignificant.

Even if the sex differences were statistically less significant than they proved to be, the consistency of the differences pointed out in the preceding paragraph would establish a strong presumption that the girls studied in the present investigation were the more prolific writers.

Differences among grades based upon seven series of compositions as in the case of differences between boys and girls were presented in an earlier section of the chapter. The consistency of the increase in number of sentences with advance in school grade is less marked than the sex differences discussed in the preceding paragraphs. The mean number of sentences

written by both boys and girls of the University school in both grades four and six is less than in the preceding grades. This fact will be further discussed presently.

Among the boys of the Dixon school there are four instances of a lower mean number of sentences written in a given grade than in the immediately preceding grade. These occur in topic series 3, 6, and 7 in the fifth grade and topic series 4 in the fourth grade. Among the girls of the Dixon school there are five instances in which the mean number of sentences written does not exceed the mean number written in the next lower grade. Three of the instances correspond exactly to the three mentioned in the case of the fifth grade boys, topic series 3, 6, and 7, one in series 1 in fourth grade, and one, series 1 in sixth grade.

The evidence just cited merely tends to corroborate the conclusion derived from the data on the total number of sentences written on all topics, Table VI, by showing the consistency of the increase in number of sentences written as the school grade of the writer advances.

The two schools may be compared in amount of writing done on topic number one. In total number of sentences the boys of both schools wrote substantially the same. In the fifth and sixth grades the boys of the Dixon school apparently wrote slightly more, and in the fourth grade substantially more. Among the girls the Dixon group wrote more in third and fourth grades, the University group slightly more in fifth and sixth grades. The ratios indicating the significance of the

differences between schools in number of sentences written on the same topic are presented in Table XXI.

TABLE XXI
SCHOOL DIFFERENCES IN MEAN NUMBER OF SENTENCES
WRITTEN IN GRADES III, IV, V, AND VI

Schools Compared	Boys			Girls		
	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
M _{III} D -M _{III} U	-0.41	0.64	-0.64	2.69	0.79	3.41
M _{IV} D -M _{IV} U	2.31	0.42	5.50	1.91	0.46	4.15
M _V D -M _V U	0.87	0.57	1.53	-0.74	0.64	-1.16
M _{VI} D -M _{VI} U	1.40	0.48	2.92	-0.34	0.55	-0.62

It is clear that the superiority in amount of writing of the fourth grade of the Dixon school to the fourth grade of the University school is statistically significant. In the other grades the differences are of doubtful significance except in the case of the third grade girls. The difference in fourth grade is clearly attributable to the relatively small amount written by the University group. No positive explanation for the abrupt decrease in amount written in the fourth grade as compared with the amount written in the third grade can be made. Certain known facts concerning the instructional practices of the school are, however, quite sufficient to provide an entirely plausible explanation.

In the third grade much emphasis in teaching is placed upon fluency and fullness of expression. Effort is directed systematically to the development of sentence sense and habits of self-criticism concerning simple elements of form, but the children are definitely encouraged to express their ideas

freely. In the fourth grade the emphasis is shifted to accurate reporting of significant items of learning in the content subjects. Other types of writing are done, letters, for example, but clear, concise, accurate exposition is especially stressed.

It will be noted that the means for the University sixth grade as well as for the fourth vary from the trend. Although the means of the sixth grade are insignificantly less than those of the fifth grade, there is reason to expect that they should be larger. The reason for this deflection from the trend may as in the case of the fourth grade also be sought in the instructional policy of the school. At the time the papers were collected from the sixth grade, the teacher of language was urging the children to eliminate all elements of verbose expression from their compositions. In fact, a standard of writing, whenever possible, one concise paragraph on a subject had been at least temporarily established.

Assuming the validity of the possible explanations for certain variations in the amount of written expression, one would be led to think that the nature of the teaching procedures employed might affect noticeably certain other aspects of composition. Further evidence of the probable influence of teaching upon the development of written expression are cited in subsequent chapters.

Comparison of the amount written on the different topics can be made only in the light of the differences in the topics of the seven series. Complete lists of the topics are given

on pages 10-12. Briefly characterized the topics were the following.

- Series 1. A personal preference: My Favorite Game or Sport.
- Series 2. Relating an incident: The Most Exciting Ride I Ever Had.
- Series 3. A descriptive and explanatory account of a personal observation: The Most Interesting Place in Chicago.
- Series 4. Defense of a judgment on such statements as, Everybody should learn to swim.
- Series 5. Real or imagined story suggested by such sentences as, Mother said that she would be gone only a minute.
- Series 6. Explanation of commonly observed phenomena such as, Why does ice float and not sink?
- Series 7. A personal letter.

It must be remembered in reading Tables XV-XX that the means for any single series are not very reliable. However, the amount written in each grade by both boys and girls on series 4 and 6 vary so consistently and so markedly from all the other series that the topics used in series 4 and 6 apparently were less productive than those used in the other series. The probable errors for the differences between series 1 and 4 were computed. The differences in all four grades for both boys and girls were from five to ten times their probable errors. Substantially more was written, therefore, on topic 1 than on topic 4.

The explanation for the greater amount of writing on the other topics than on the topics of series 4 and 6 may be that the latter required a higher type of mental function and therefore imposed a greater difficulty, or that the children may have

been less experienced in writing on subjects requiring the higher type of thinking and consequently were less fluent. Probably both factors contributed to the difference.

Earlier in the chapter data were presented to show the development in length of sentence during the elementary school years. Tables XXII and XXIII present the data relating to length of simple and of complex sentences written on each topic.

TABLE XXII

MEAN NUMBER OF WORDS IN SIMPLE SENTENCES WRITTEN ON DIFFERENT TOPICS BY BOYS AND BY GIRLS IN GRADES III, IV, V, AND VI, AND BY ADULTS

Writers	Topic Number	Sex	III	IV	V	VI	Adults
University	1	M	8.1	8.5	8.9	8.8	....
		F	7.7	7.3	8.7	8.9	....
Dixon	1	M	6.9	7.4	7.5	8.2	....
		F	7.5	7.8	7.6	8.2	....
	2	M	7.6	7.3	7.8	8.4	....
		F	7.5	7.8	8.0	7.7	....
	3	M	7.8	7.7	7.7	9.2	....
		F	7.3	8.1	7.6	9.2	....
	4	M	5.9	8.9	8.0	7.7	....
		F	7.8	7.7	8.2	8.3	....
	5	M	7.7	7.6	7.6	7.8	....
		F	7.0	7.5	7.7	7.7	....
	6	M	7.6	8.2	7.0	10.4	....
		F	7.5	8.9	8.0	9.7	....
	7	M	7.4	7.5	8.5	8.6	....
		F	7.6	8.0	8.6	8.6	....
Adults	Misc.	M	...	...	...	...	14.6
		F	...	...	...	...	13.6

TABLE XXIII

MEAN NUMBER OF WORDS IN COMPLEX SENTENCES WRITTEN ON DIFFERENT TOPICS BY BOYS AND BY GIRLS IN GRADES III, IV, V, AND VI, AND BY ADULTS

Writers	Topic Number	Sex	III	IV	V	VI	Adults
University	1	M	12.4	14.3	14.6	15.1	....
		F	12.2	12.4	15.5	15.1	....
Dixon	1	M	12.2	12.4	11.9	13.5	....
		F	11.5	12.4	13.0	14.2	....
	2	M	14.4	14.0	13.0	13.7	....
		F	12.7	12.4	13.1	14.1	....
	3	M	12.3	12.5	12.4	13.9	....
		F	11.9	12.7	12.0	13.4	....
	4	M	13.8	17.2	14.2	16.3	....
		F	11.6	13.9	14.0	16.3	....
	5	M	12.3	13.3	12.5	12.3	....
		F	11.5	12.5	12.4	12.8	....
	6	M	14.6	16.5	14.6	16.3	....
		F	11.4	15.1	16.7	15.4	....
	7	M	11.6	11.2	11.9	12.3	....
		F	12.3	12.3	13.0	14.3	....
Adults	Misc.	M	....	....	....	....	26.2
		F	....	....	....	....	23.8

A comparison of the length of sentences written by adults and those written by children shows a clear superiority of the adults. Evidently the adults whose written expression was studied were able to incorporate considerably more refinement and modification of ideas in their sentences than were the children. It must be remembered also that the topics upon which the two groups of writers wrote were not comparable.

The sex differences in length of sentence proved to be small when the data for all seven series were combined. It is

to be expected, therefore, that distributing the data among the seven series would show some inconsistency.

Similarly, the grade differences were shown to be so small in many instances that classifying the data in seven groups reduces the reliability of the differences very considerably. It is clear, however, that the trend is in general consistent in each series with the trend of the entire number of simple and complex sentences, that is, that children in the more advanced grades write longer sentences than do the children in the lower grades. In general it appears that the children of the University school wrote somewhat longer sentences of both simple and complex types than did the children of the Dixon school. Possible exceptions occur in the case of the fourth grade girls. The mean number of words in simple sentences of the Dixon girls is slightly larger; the means of the two groups are the same for complex sentences. The differences in length of simple sentences written by boys of the two schools were from 1.9 to 4.5 times the probable error. In complex sentences the range of ratios between the difference and the probable error extended from .28 to 5.33. In the case of the girls even greater variation was found but a typical ratio between the two schools in difference in length of sentence written in a given grade was 2. That is, excepting those of the third and fourth grade girls, both the simple and complex sentences written by the University children were longer than those written by the children of the Dixon school in corresponding grades. Whether the superiority of the University group is to be ascribed to greater mental

maturity, to some factor in instruction, to out-of-school language experience, or to other factors it is impossible from data available to say.

Comparisons of the figures for the different series of compositions reveals one or two clues to possible significant differences. It is possible that, if the sampling were adequate for a minute comparison, the complex sentences written on the more exacting topics, series 4 and 6, would prove to be longer. There is also the suggestion in the figures showing mean length of complex sentences that the difference between third grade and sixth in series 4 and 6 is greater than in other series. No differences in length of simple sentences are sufficiently large to be significant.

The very young writer seems to exhaust momentarily his mental energy in relatively short sentences, and in relatively few statements concerning a given subject. His span of attention less frequently reaches the extent required in conceiving the longer and more complex sentences more often used by older children.

The mature mind in command of a mature language ability uses that indispensable instrument only infrequently with interruptions and inhibitions and most frequently is distinctly aided in its processes by the refined precision of the instrument of language. The maturing mind gaining command over a maturing language ability is frequently inhibited in its facility of operation by the inadequacy of its instrument or agency of expression. That is, full maturity implies in general a close parallel between thought and the language required for its

expression. Immaturity implies frequent interference, inhibition, and interruption of thought by the necessity to apply attention to the inadequacy of the language available for use. Evidence presented in subsequent chapters on other phases of language further substantiate the statements outlined above.

Summary

In the total amount of written expression substantial differences among grades and between boys and girls were found. The sex differences were somewhat greater than the grade differences. Increase from grade to grade in the number of sentences written proved to be materially greater in the use of complex and complex-compound sentences than in simple or compound. The increase in the number of complex sentences from third to sixth grade was approximately 100 per cent. The development in length of sentences was considerably less pronounced than in number of sentences. Significant differences were found, however, among given grades and the second succeeding grades in simple and complex sentences. Sex differences in length of sentences appeared to be too small to have any significance. The children of the University Elementary school wrote slightly longer and slightly fewer simple and complex sentences than did the children of the Dixon school. There is some evidence for thinking that children write noticeably less on subjects requiring exact exposition than on subjects of a more personal character.

CHAPTER IV

SENTENCE STRUCTURE: STATISTICAL ANALYSIS

The three aspects of sentence structure to be discussed in the present chapter are, types of sentences, types of clauses, and evidences of sentence sense. All sentences collected for use in the study were classified as simple, complex, compound, or complex-compound. Each type of clause was also indicated. Four different items of evidence relating to completeness and precision of designation of sentences were tabulated. The three classes of data just mentioned will be presented and analyzed in this chapter.

Types of Sentences

The data relating to types of sentences are presented in Table XXIV.

TABLE XXIV

PERCENTAGE OF EACH TYPE OF SENTENCE IN THE TOTAL
NUMBER OF SENTENCES WRITTEN IN EACH OF GRADES
III, IV, V, AND VI OF THE DIXON SCHOOL

Type of Sentence	Sex	III	IV	V	VI
Simple	Boys	53.9	50.3	48.8	46.2
	Girls	56.9	48.4	44.9	40.2
Complex	Boys	29.2	31.3	32.7	34.5
	Girls	27.6	34.6	36.2	38.3
Compound	Boys	10.5	9.6	9.5	9.0
	Girls	9.8	9.1	9.7	10.1
Complex-Compound	Boys	6.5	8.8	9.0	10.4
	Girls	5.7	7.9	9.2	11.3

The proportions of simple sentences used by both boys and girls decrease consistently with advance in school grade. The proportions of complex sentences increase with equal consistency. Likewise, the complex-compound sentences increase in percentage of occurrence with advance in the school grade of the writers. The percentages of compound sentences vary only slightly, and in the case of the girls they vary somewhat irregularly. In so far as consistency of variation in proportions of the different types of sentences written indicates development in written expression, it seems clear that the children studied express a larger proportion of their ideas in complex sentences as they progress through the elementary school grades.

The significance of the amount of difference in the proportions of different types of sentences used in the different grades is indicated by the data in Table XXV.

The ratios indicate that the amount of difference in the proportions of the different types of sentences used by the boys of any two consecutive grades is small in all cases and negligible in some. Comparison of third grade with fifth, and fourth grade with sixth increases materially the probability that the observed differences are significant except in the case of the compound sentences.

The ratios for the girls indicate a considerably higher probability that the proportions of complex and complex-compound sentences increase in each grade over the next lower grade. At the same time the percentage of simple sentences written by

girls quite certainly decreases from grade to grade.

TABLE XXV
GRADE DIFFERENCES IN PERCENTAGE FREQUENCY
OF FOUR TYPES OF SENTENCES

Type of Sentence	Grade Groups Compared in Percentage Frequency	Boys			Girls		
		Diff.	P.E.	Diff. P.E.	Diff.	P.E.	Diff. P.E.
Simple	P _{IV} - P _{III}	-3.6	1.3	-2.8	-8.5	1.0	-8.5
	P _V - P _{IV}	-1.5	1.2	-1.2	-3.5	1.0	-3.5
	P _{VI} - P _V	-2.6	1.0	-2.6	-4.7	1.0	-4.7
	P _V - P _{III}	-5.1	1.3	-3.9	-12.0	1.1	-10.9
	P _{VI} - P _{IV}	-4.1	1.1	-3.7	-8.2	1.0	-8.2
Complex	P _{IV} - P _{III}	2.1	1.2	1.8	7.0	0.9	7.8
	P _V - P _{IV}	1.4	1.1	1.3	1.6	1.0	1.6
	P _{VI} - P _V	1.8	1.0	1.8	2.1	1.0	2.1
	P _V - P _{III}	3.5	1.2	2.9	8.6	1.0	8.6
	P _{VI} - P _{IV}	3.2	1.1	2.9	3.7	0.9	4.1
Compound	P _{IV} - P _{III}	-0.9	0.8	-1.1	-0.7	0.6	-1.2
	P _V - P _{IV}	-0.1	0.7	-0.1	0.6	0.6	1.0
	P _{VI} - P _V	-0.5	0.6	-0.8	0.4	0.6	0.7
	P _V - P _{III}	-1.0	0.8	-1.3	-0.1	0.6	-0.2
	P _{VI} - P _{IV}	-0.6	0.7	-0.9	1.0	0.6	1.7
Complex-Compound	P _{IV} - P _{III}	2.3	0.7	3.3	2.2	0.5	4.4
	P _V - P _{IV}	0.2	0.7	0.3	1.3	0.6	2.2
	P _{VI} - P _V	1.4	0.6	2.3	2.1	0.6	3.5
	P _V - P _{III}	2.5	0.7	3.6	3.5	0.6	5.8
	P _{VI} - P _{IV}	1.6	0.7	2.3	3.4	0.6	5.7

The differences in the proportions of compound sentences among the different grades are in all comparisons so small that they signify no discernible trend. When, however, the compound sentences are classified according to the conjunction used, there appears at least a suggestion of trends. Table XXVI presents data on the percentage of different types of coordinate clauses in the total number of coordinate clauses.

TABLE XXVI

PERCENTAGE OF VARIOUS TYPES OF COORDINATE CLAUSES IN
THE TOTAL NUMBER OF COORDINATE CLAUSES WRITTEN IN
GRADES III, IV, V, AND VI OF THE DIXON SCHOOL

Conjunction Introducing Clause	Sex	III	IV	V	VI
and	Boys	43.6	38.2	35.4	34.3
	Girls	34.4	36.9	32.7	33.9
but	Boys	5.4	9.7	11.7	12.0
	Girls	10.5	7.7	12.9	12.0
so	Boys	4.7	6.0	6.0	6.9
	Girls	5.8	9.1	6.1	5.8
Misc.	Boys	.7	1.0	1.0	1.4
	Girls	2.7	.7	1.8	1.6

The evidence of Table XXVI is too meager to justify a generalization. However, the data suggest that a greatly enlarged sampling of children's writing might show that sentences compounded by addition of ideas tend to decrease in proportion to the total number of coordinate clauses used, whereas sentences compounded by contrast of ideas tend to increase. The convenient but vaguely defined conjunction so occurred quite frequently in the papers. Such a variety of meanings were implied by it, however, that interpretation of the figures would be difficult even if they showed a clear trend. The miscellaneous classifications included the very infrequently used conjunctions, or, while, therefore, and those instances of the use of two coordinate clauses which are properly punctuated by being separated by a semicolon.

The noticeable difference between the percentage of each

type of sentence used by boys and those used by girls as exhibited in Table XXIV indicate that sex differences may be significant. Table XXVII presents the data necessary for an evaluation of the differences in the proportions of various types of sentences used by boys and those used by girls.

TABLE XXVII
SEX DIFFERENCES IN PERCENTAGE FREQUENCY OF FOUR
TYPES OF SENTENCES

Type of Sentence	Sex Groups Compared in Percentage Frequency	III			IV		
		Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
Simple	$P_G - P_B$	3.0	1.3	2.3	-1.9	1.1	-1.7
Complex	$P_G - P_B$	-1.6	1.1	-1.5	3.3	1.0	3.3
Compound	$P_G - P_B$	-0.7	0.8	-0.9	-0.5	0.7	-0.7
Complex-Compound	$P_G - P_B$	-0.8	0.6	-1.3	-0.9	0.6	-1.5

TABLE XXVII (continued)

Type of Sentence	Sex Groups Compared in Percentage Frequency	V			VI		
		Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
Simple	$P_G - P_B$	-3.9	1.1	-3.5	-6.0	1.0	-6.0
Complex	$P_G - P_B$	3.5	1.0	3.5	3.8	0.9	4.2
Compound	$P_G - P_B$	0.2	0.6	0.3	1.1	0.6	1.8
Complex-Compound	$P_G - P_B$	0.2	0.6	0.3	0.9	0.6	1.5

Whereas the girls write more simple sentences and fewer complex sentences in the third grade than do the boys, the sex differences are reversed in all subsequent grades. Furthermore, the differences grow progressively greater with advance in grade beyond the third. In so far as the proportions of

simple and complex sentences indicate development in written expression, girls are superior to boys in rate of growth and above the third grade they are superior in the level of attainment although they are probably inferior at the third grade level.

Subordinate Clauses

The percentage frequency of each of the three types of subordinate clauses is presented in Table XXVIII.

TABLE XXVIII

PERCENTAGE OF EACH TYPE OF SUBORDINATE CLAUSE IN THE TOTAL
NUMBER OF SENTENCES WRITTEN IN EACH OF GRADES III,
IV, V, AND VI OF THE DIXON SCHOOL

Type of Clause	Sex	III	IV	V	VI
Noun	Boys	13.0	13.7	14.2	19.6
	Girls	14.8	16.2	21.6	26.6
Adjective	Boys	5.8	8.9	9.6	9.8
	Girls	5.5	8.7	9.7	10.7
Adverbial	Boys	31.1	34.7	32.1	33.8
	Girls	23.6	32.0	32.6	35.4

There is a small but consistent increase in the percentage of noun and adjective clauses in each grade over the percentage in the next lower grade. In the case of the adverbial clauses the trend is somewhat irregular. The significance of the differences between grades of each type of clause is indicated in Table XXIX.

The evidence of Table XXIX suggests that the proportions of noun and adjective clauses do increase with progress through the grades of the elementary school, although the reliability

TABLE XXIX

GRADE DIFFERENCES IN PERCENTAGE FREQUENCY OF
EACH TYPE OF SUBORDINATE CLAUSE

Type of Clause	Grade Groups Compared in Percentage Frequency	Boys			Girls		
		Diff.	P.E.	Diff. P.E.	Diff.	P.E.	Diff. P.E.
Noun	P _{IV} - P _{III}	0.7	0.9	0.8	1.4	0.8	1.8
	P _V - P _{IV}	0.5	0.8	0.6	5.4	0.8	6.8
	P _{VI} - P _V	5.4	0.8	6.8	5.0	0.9	5.6
	P _V - P _{III}	1.2	0.9	1.3	6.8	0.8	8.5
	P _{VI} - P _{IV}	5.9	0.8	7.4	10.4	0.8	13.0
Adjective	P _{IV} - P _{III}	3.1	0.7	4.4	3.2	0.5	6.4
	P _V - P _{IV}	0.7	0.7	1.0	1.0	0.6	1.7
	P _{VI} - P _V	0.2	0.6	0.3	1.0	0.6	1.7
	P _V - P _{III}	3.8	0.7	5.4	4.2	0.6	7.0
	P _{VI} - P _{IV}	0.9	0.6	1.5	2.0	0.6	3.3
Adverbial	P _{IV} - P _{III}	3.6	1.2	3.0	8.4	0.9	9.3
	P _V - P _{IV}	-2.6	1.1	-2.4	0.6	0.9	0.7
	P _{VI} - P _V	1.7	1.0	1.7	2.8	1.0	2.8
	P _V - P _{III}	1.0	1.2	0.8	9.0	1.0	9.0
	P _{VI} - P _{IV}	-0.9	1.1	-0.8	3.4	0.9	3.8

of certain of the grade differences is far from convincing. In the case of adverbial clauses the evidence is less clear. In so far as the data available are reliable it is very doubtful whether there is any consistent trend from grade to grade in the proportion of adverbial clauses used. Comparison of the percentages of adverbial clauses of third and of fourth grade girls reveals a statistically significant difference. However, the percentage is so low in the third grade as compared with the percentage of the third grade boys, and the difference between grades three and four is so much greater than the difference between any other two consecutive grades of either boys or girls that considerable doubt is cast upon the

reliability of the percentage of adverbial clauses used by the third grade girls.

The sex differences in the frequency of use of dependent clauses are revealed in Table XXX.

TABLE XXX

SEX DIFFERENCES IN PERCENTAGE FREQUENCY OF EACH
TYPE OF SUBORDINATE CLAUSE

Type of Clause	Sex Groups Compared in Percentage Frequency	III			IV		
		Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
Noun	$P_A - P_B$	1.8	0.9	2.0	2.5	0.8	3.1
Adjective	$P_A - P_B$	-0.3	0.6	-0.5	-0.2	0.6	-0.3
Adverbial	$P_A - P_B$	-7.5	1.1	-6.8	-2.7	1.1	-2.5

TABLE XXX (continued)

Type of Clause	Sex Groups Compared in Percentage Frequency	V			VI		
		Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>	Diff.	P.E.	<u>Diff.</u> <u>P.E.</u>
Noun	$P_A - P_B$	7.4	0.8	9.3	7.0	0.8	8.8
Adjective	$P_A - P_B$	0.1	0.6	0.2	0.9	0.6	1.5
Adverbial	$P_A - P_B$	0.5	1.0	0.5	1.6	0.9	1.8

Further corroboration of the conclusions suggested above concerning percentages of dependent clauses is found in additional classifications of the data. In Table XXXI are shown the percentages of each type of dependent clause used by children at various chronological ages.

The evidence of Table XXXI supports the conclusion that the proportion of noun clauses increases with increasing

TABLE XXXI

PERCENTAGE OF EACH TYPE OF SUBORDINATE CLAUSE IN THE
TOTAL NUMBER OF SENTENCES WRITTEN AT EACH YEAR
OF CHRONOLOGICAL AGE, 8 TO 12 INCLUSIVE

Type of Clause	Sex	8-0 to 8-11	9-0 to 9-11	10-0 to 10-11	11-0 to 11-11	12-0 to 12-11
Noun	Boys	13.5	13.8	14.2	17.7	20.8
	Girls	15.8	16.0	22.5	25.2	28.2
Adjective	Boys	6.8	9.5	9.3	9.2	8.7
	Girls	6.2	8.7	11.1	9.3	6.5
Adverbial	Boys	34.7	32.1	32.9	32.7	33.0
	Girls	25.9	30.3	33.3	35.2	34.3

maturity of the writers. The amount of the increase indicated by the data at hand is obviously small particularly at the younger ages, but the consistency of the increase remains undisturbed by the reclassification upon a different basis. The age classification, however, casts considerable doubt upon the increase in the proportion of adjective clauses beyond the age of 9 or 10 years. The trend in the percentage of adverbial clauses remains irregular.

Table XXXII presents the data concerning the frequency of use of dependent clauses classified on a basis of mental age.

The analysis on the basis of mental age reveals some irregularity of trends even in the percentage of noun clauses. Since, however, the data are distributed through seven years of mental age, the number of cases becomes sufficiently reduced at some intervals to account for the irregularity in percentages. Aside from the decrease between 7-6 and 8-6 the trend in the percentage of adjective clauses is more consistent when

the data are classified on a basis of mental age than when classified on the basis of chronological age.

TABLE XXXII

PERCENTAGE OF EACH TYPE OF SUBORDINATE CLAUSE IN
THE TOTAL NUMBER OF SENTENCES WRITTEN AT EACH
YEAR OR MENTAL AGE, 7-6 TO 13-6 INCLUSIVE

Type of Clause	Sex	7-6 to 8-5	8-6 to 9-5	9-6 to 10-5	10-6 to 11-5	11-6 to 12-5	12-6 to 13-5	13-6 to 14-5
Noun	Boys	15.1	17.5	13.4	15.6	13.7	19.8	19.3
	Girls	18.2	15.2	16.6	19.6	22.9	27.3	25.4
Adjective	Boys	9.3	6.0	8.6	8.5	9.5	10.8	10.1
	Girls	10.1	5.9	7.9	9.0	8.7	11.1	13.0
Adverbial	Boys	31.8	30.5	32.2	35.4	32.6	30.3	36.8
	Girls	34.5	27.5	30.9	31.7	31.0	35.3	31.9

The adverbial clauses were analyzed into the various types. The percentage of each type in the total number of adverbial clauses is exhibited in Table XXXIII.

Among the more frequently used types there appears no clearly defined trend through the grades. There is a suggestion that causal clauses decrease in proportion and that conditional clauses increase in the writing of the girls. Among the less frequently occurring types, purpose, place, manner, and concession, the number of instances found is too small to warrant drawing any conclusion. However, the trend is rather clearly an increase from grade to grade in the proportions of the less frequently used types. Probably increasing the number of sentences analyzed to a hundred thousand or more would demonstrate a statistically reliable increase from grade to grade in

the use of clauses of purpose, concession, etc.

TABLE XXXIII

PERCENTAGE OF EACH TYPE OF ADVERBIAL CLAUSE IN THE TOTAL
NUMBER OF ADVERBIAL CLAUSES WRITTEN IN GRADES III,
IV, V, AND VI OF THE DIXON SCHOOL

Type of Adverbial Clause	Sex	III	IV	V	VI
Time	Boys	34.5	40.4	39.7	43.7
	Girls	46.0	49.9	42.1	39.9
Cause	Boys	28.1	31.2	24.2	22.8
	Girls	32.0	25.6	23.9	23.0
Condition	Boys	19.8	16.0	19.3	17.7
	Girls	7.1	11.3	14.3	16.0
Degree	Boys	11.7	8.9	10.7	7.6
	Girls	11.6	7.8	11.6	11.7
Result	Boys	4.2	2.0	3.8	3.0
	Girls	.7	3.1	4.0	6.2
Purpose	Boys	.6	1.0	1.3	1.6
	Girls	1.1	.8	1.2	.5
Place	Boys	.3	...	...	.4
	Girls	.2	.1	.6	.1
Manner	Boys	.8	.4	.8	1.9
	Girls	1.1	1.2	1.3	.8
Concession	Boys	...	.2	.2	1.5
	Girls	.2	.3	1.0	1.7

The percentages in Tables XXVIII-XXXII were computed on a basis of the total number of sentences written in each grade. Obviously the percentage of each type of subordinate clause might be computed on the basis of total number of subordinate clauses used in each grade. The data of Table XXXIV were computed on the latter basis.

TABLE XXXIV

PERCENTAGE OF EACH TYPE OF SUBORDINATE CLAUSE IN THE TOTAL
NUMBER OF SUBORDINATE CLAUSES WRITTEN IN EACH OF GRADES
III, IV, V, AND VI OF THE DIXON SCHOOL

Type of Clause	Sex	III	IV	V	VI
Noun	Boys	26.0	23.9	25.4	31.1
	Girls	33.7	8.4	33.8	36.6
Adjective	Boys	11.6	15.5	17.2	15.4
	Girls	12.5	15.3	15.2	14.8
Adverbial	Boys	62.3	60.6	57.4	53.5
	Girls	53.8	56.3	51.0	48.7

Although the trend indicated in the percentage frequencies in the table exhibited above are disturbingly irregular in all cases except the adverbial clauses written by boys, there is, nevertheless, an apparent difference between third and sixth grades. The evidence indicates an increase between third and sixth grades in the use of noun and adjective clauses and a corresponding decrease in the use of adverbial clauses. The girls appear to be superior to the boys in all grades in the use of all types of clauses, that is, a larger proportion of the subordinate clauses written by girls were noun and adjective clauses, and a smaller proportion were adverbial than the proportions of the same types used by boys in corresponding grades. The differences between third and sixth grades are from 2.4 to 5.5 times their probable errors. Typical sex differences, noun clauses or adverbial clauses in the sixth grade, are 3.7 and 4.0 times their probable errors.

Sufficient evidence has already been presented to show

that older children organize their ideas in complex patterns of expression to a greater extent than do younger children. Since the number of both coordinate and subordinate clauses increase with increasing maturity, the question arises whether there is any difference in the relative increase in elaboration of thought by addition of coordinate ideas and refinement and qualification of ideas by the use of subordinate modifiers. Data on the question are contained in Table XXXV.

TABLE XXXV

RATIOS BETWEEN THE NUMBER OF COORDINATE CLAUSES AND
THE NUMBER OF SUBORDINATE CLAUSES WRITTEN BY BOYS
AND BY GIRLS IN EACH OF GRADES III, IV, V, AND
VI OF THE DIXON SCHOOL, AND BY MEN AND WOMEN

Sex of Writers	III	IV	V	VI	Adults
Male.....	.74	.71	.72	.67	.43
Female.....	.76	.66	.64	.63	.48

The figures in the table express the ratio between the number of coordinate clauses used by a given group of writers and the number of subordinate clauses used by the same writers. The third grade children use three-fourths as many coordinate clauses as the number of subordinate clauses. The evidence in the table exhibited above clearly indicates an increase from grade to grade in the relative frequency of use of subordinate clauses compared with the frequency of use of coordinate clauses. Above the third grade, girls appear to be superior to boys. The ratios for adults show that the men and women whose letters were analyzed use only about four tenths as many coordinate

clauses as the number of subordinate.

One additional comparison may be made to reveal some indication of development in the frequency of use of subordinate clauses. In Table XXXVI are presented the percentage frequencies in the use of subordinate clauses by sixth grade children and by adult writers.

TABLE XXXVI

PERCENTAGE OF EACH TYPE OF SUBORDINATE CLAUSE IN THE
TOTAL NUMBER OF SUBORDINATE CLAUSES WRITTEN BY
SIXTH GRADE CHILDREN AND BY MEN AND WOMEN

	Noun	Adjective	Adverbial
Sixth Grade Boys.....	31.1	15.4	53.5
Men.....	33.4	30.8	35.7
Sixth Grade Girls.....	36.6	14.8	48.7
Women.....	34.5	30.7	34.8

Apparently the sixth grade children who were studied wrote approximately the same proportion of noun clauses as did the men and women whose letters were collected. The course of development suggested by the evidence available is a substantial increase in the proportion of adjective clauses and a corresponding decrease in the proportions of adverbial clauses. On the basis of the evidence here presented it appears that children find need for modifying their predicate ideas by adverbial clauses about three times as frequently as they require a clause to modify a substantive. Adults appear to use the two types of modification in approximately equal proportions. The foregoing statements are of course limited to the reliability of the data. The writing of other people, both children

and adults, might contain quite different proportions of subordinate clauses. Probably the sampling of written expression herein reported is more nearly adequate in the case of children than in the case of adults. It would be highly desirable to make a detailed comparison of the writing of children with that of their parents.

The data presented in the foregoing sections of the present chapter were obtained from the seven series of compositions written by 368 children of the Dixon school. As a basis for comparison of data the one series of compositions secured from 231 children of the University Elementary school and the 286 letters contributed to daily newspapers by adults were analyzed. These supplementary data and comparisons with the data of the Dixon school are presented in succeeding sections of this chapter. Differences in the sentence structure of compositions written on different subjects are also pointed out.

Data on the relative frequency of use of different types of sentences by the children of the two schools and by adults are presented in Table XXXVII.

Only rough comparisons of the data in Table XXXVII are justifiable for two reasons. In the first place, the number of sentences on which the percentages for the school grades were computed are too small to be reliable. In the second place, the children wrote on one topic, whereas the adults wrote on a great variety of subjects.

Except in the case of compound sentences the trend through the grades is clearly toward the adult standard. In a

TABLE XXXVII

PERCENTAGE OF EACH TYPE OF SENTENCE IN THE TOTAL NUMBER OF SENTENCES WRITTEN ON THE SAME TOPIC IN EACH OF GRADES III, IV, V, AND VI OF THE DIXON SCHOOL AND OF THE UNIVERSITY ELEMENTARY SCHOOL AND ON MISCELLANEOUS TOPICS BY ADULTS

Type of Sentence	Sex	Writers	III	IV	V	VI	Adults
Simple	M	Dixon	57.0	49.4	54.9	50.2	....
		Univ.	68.3	50.6	50.0	44.5	....
		Adults	....	....	....	....	40.9
	F	Dixon	64.9	53.8	46.6	44.5	....
		Univ.	72.8	62.5	53.2	37.5	....
		Adults	....	....	....	....	40.9
Complex	M	Dixon	26.7	31.9	30.4	32.2	....
		Univ.	22.2	35.1	32.1	38.2	....
		Adults	....	....	....	....	42.8
	F	Dixon	18.9	31.5	35.6	30.6	....
		Univ.	17.8	22.6	26.1	39.6	....
		Adults	....	....	....	....	41.9
Compound	M	Dixon	12.0	9.9	10.7	8.1	....
		Univ.	4.8	6.5	9.2	7.9	....
		Adults	....	....	....	....	6.5
	F	Dixon	10.7	7.8	8.6	12.5	....
		Univ.	4.1	7.7	12.5	12.4	....
		Adults	....	....	....	....	6.7
Complex-Compound	M	Dixon	4.4	8.8	4.0	9.5	....
		Univ.	4.8	7.8	8.7	9.4	....
		Adults	....	....	....	....	9.8
	F	Dixon	5.5	7.0	9.2	12.5	....
		Univ.	5.3	7.1	8.1	10.6	....
		Adults	....	....	....	....	10.5

number of instances the achievement of the sixth grade approaches very closely the record for adults. This is particularly true of the University children in the percentage of complex sentences and of both schools in complex-compound sentences.

Comparison of the two schools is entirely unsatisfactory

because of the erratic nature of the trends indicated.

The frequency of usage of each type of subordinate clause is indicated in the data of Table XXXVIII.

TABLE XXXVIII

PERCENTAGE OF EACH TYPE OF SUBORDINATE CLAUSE IN THE TOTAL
NUMBER OF SENTENCES WRITTEN ON THE SAME TOPIC IN EACH
OF GRADES III, IV, V, AND VI OF THE DIXON SCHOOL
AND OF THE UNIVERSITY ELEMENTARY SCHOOL,
AND ON MISCELLANEOUS TOPICS BY ADULTS

Type of Clause	Sex	Writers	III	IV	V	VI	Adults
Noun	M	Dixon	4.4	9.9	6.6	8.8	....
		Univ.	2.4	9.1	7.9	9.9	....
		Adults	...	...	...	...	27.2
	F	Dixon	7.3	13.1	13.1	18.1	....
		Univ.	3.0	4.8	11.5	17.0	....
		Adults	...	....	....	....	26.7
Adjective	M	Dixon	7.2	9.9	9.7	9.8	....
		Univ.	9.6	9.1	17.5	17.3	....
		Adults	...	...	....	....	25.1
	F	Dixon	4.3	8.4	11.9	6.5	....
		Univ.	9.5	7.1	11.2	13.4	....
		Adults	...	...	....	....	23.8
Adverbial	M	Dixon	29.1	34.6	26.0	35.4	....
		Univ.	18.6	36.4	33.3	36.1	....
		Adults	....	....	....	....	29.1
	F	Dixon	17.8	27.6	32.1	38.0	....
		Univ.	16.6	22.6	26.1	43.8	....
		Adults	....	....	....	....	27.0

From an examination of the foregoing table it is clear that there is a much closer correspondence in the proportions of the different types of subordinate clauses used between the two groups of children than between either group of children and adults. This fact may be accounted for by the difference

in the subjects of the compositions. The percentages of adverbial clauses used by children show an increase through the grades and in the upper grades they indicate a greater frequency of usage than that of adults. Since the percentage of adverbial clauses in all seven series of the children's compositions was approximately the same in all grades, the nature of the subject may have been the determining factor in causing the increase shown in Table XXXVIII.

In the use of both noun and adjective clauses the trend through the grades in both school groups is clearly toward the proportion used by adults, but the percentage attained in the sixth grade is decidedly smaller than that of the adult groups.

Since the children wrote on one topic whereas the adults wrote on a great variety of topics, the percentages of the two groups are not comparable by whatever amount of variation in type of sentence which was caused by the subject of the compositions.

Evidence of Sentence Sense

An attempt was made to determine from the structure of their sentences some measure of children's sentence sense. Four items were tabulated: (1) run-on sentences, (2) dangling phrases or non-sentence groups of words, (3) omission of punctuation at the conclusion of one sentence and capital letter at the beginning of the next, (4) punctuation as an independent sentence of a dependent clause which obviously belonged to the preceding or succeeding sentence. Each of these suggested

measures of sentence sense will be further described and illustrated in order to make intelligible the data in the tables to be presented later.

Run-on sentences.—It is doubtful whether a run-on sentence can be objectively defined. For the purpose of the present study, however, those compound sentences having three or more clauses introduced by and were tabulated as run-on sentences. A few sentences, which in the judgment of the investigator were clearly compounded to an excessive degree by the addition of ideas which might have been more conventionally expressed as separate sentences, did not come within the definition of a run-on sentence. The following may be cited as examples of the type just mentioned.

Then we had to go and eat supper and we had to go home and I had to go to bed. -Girl, IV B

But when I come to think about it I like winter too because in summer you get sunburned and too hot but in winter you get too cold and you get a frozen nose or ear. -Girl, V B

I thought the water was only knee-deep but when I started to wade I found it deeper and I got all wet, and I had to go home and change my clothes and put on dry ones. -Boy, V B

I thought the water was knee-deep but when I started to wade it was almost up to my chest so I ran home and took off my clothes and put on my other clothes and I said to myself I'll never wade in a puddle any more. -Boy, V B

When we went to school one morning and were about to cross the street and a big truck came along, I remembered what my mother told me about crossing the street so I stopped, but Jack ran on and was almost hit, and I told him he would get killed if he did that once too often. -Boy, V A

Sentences similar to those quoted above occurred sufficiently often to attract attention and present the suggestion

that they should be separately tabulated. Since, however, no rule for classifying them could be formulated which would be free from variable subjective elements, it seemed more advisable to adhere to the strictly objective requirement of three independent clauses introduced by and as the criterion for a run-on sentence. A few examples may be cited to make concrete the description of the type.

I helped mother clean up and I clean the yard and I plant the flower in the garden and then I went down to my aunt house and I stayed there until Sunday and Sunday I went to the show and I had such a nice time there. -Girl, IV B

Last week I went on the farm and I saw pigs, cows, and ponies, and I rode the pony all around the farm yard and I came back and laid down and I fell asleep and I worked and it was dark. (Entire composition) -Girl, IV B

I went through the barrel and I just about fell down and then I went down stairs and then we went out. -Boy, IV A

After a while they saw a pump and they galloped real fast and we almost fell off and then my horse saw some weeds he wanted to eat and he went down a very steep hill. -Girl, V A

We went out then and saw it and then we came back and I went in swimming for a hour and a half and then I got dressed and got something to eat and my uncle came and got us and we went home. -Boy, VI B

A few run-on sentences were extended to very great length. One, for example, written by a third grade boy contained twelve clauses introduced by and. It contained 143 words. Another, written by a fourth grade girl contained fifteen clauses introduced by and. It was 152 words in length.

Dangling phrases.—A second type of data was tabulated as a possible measure of sentence sense. This second type was dangling phrases or non-sentence groups of words. Only those groups which could not be meaningfully attached to preceding or

succeeding sentences were counted in this classification. A few examples of the type are quoted below:

Then when they went out a little girl a little boy.
-Girl, IV B

Then in a big boat. -Girl, IV B

Some of basswood and black Jack trees. -Boy, IV B

And the same to boys. -Boy, V B

I think everybody should learn how to swim because, if you fell out of a boat or if there was a flood. -Boy, V B

If you are sick and the doctor said you should not eat any candy. -Boy, VI B

Or to be found when lost or stolen. -Girl, VI A

Omission of conventional signs designating the end of one sentence and the beginning of the next.—Very frequently the writing of the children studied flowed as uninterruptedly as the breathless oral speech of tense excitement. In some instances many sentences—eight, ten, or twelve in a single paper—were quite undifferentiated in form but entirely clear in meaning. Each failure of the writer to distinguish two consecutive sentences either by a mark of punctuation at the end of one or by a capital letter at the beginning of the other was marked by an appropriate symbol. The number of occurrences of the sort just described was tabulated. The following examples illustrate the lack of mastery over the conventional modes of designating sentences in written expression.

It is good to swim it is cool in the water. -Boy, III A

We use ice at home we could not keep some food without ice. -Girl, III A

Last summer we were going to my aunt's on the way there the car went on two wheels we were all afraid but no one got hurt so we went on coming back we went slow we had a very nice time I hope we will go back next summer too. (Entire composition) -Girl, V A

I was sick with trenchmouth, it was about fifteen minutes after my mother left and I was looking out of the window, there was my mother talking to one of our neighbors. -Boy, VI A

Incorrect designation of a clause as an independent sentence.—In some instances the writers quite overworked periods and capital letters separating sentences into two independent propositions when they obviously belonged together in one sentence. Examples of this type of misuse of the conventional forms of writing are listed below.

Everybody should learn to swim. Because if you went to the lake and you didn't know how to swim you would drown.
-Boy, III B

I went on a boat ride. And had lots of fun. -Girl,
III A

Last week I went to a country club. With my mother and father. -Girl, IV B

I think everyone should learn to swim. Because if they were on a rowboat and if it should sink. What would they do? -Boy, IV A

After mother went. My brother and I had a fight.
-Boy, V B

And the next night. We went again. -Boy, V B
It wasn't far away but there were so many trees and bushes. It took us a half an hour. -Boy, V A

Last summer when I went to the Black Hills in South Dakota. I went and saw Crystal Cave....The guide points out the meat market. Which was formed by crystals. -Girl,
VI A

Statistical data on sentence sense.—The frequency of occurrence of each of the four types of evidence bearing upon faulty sentence sense is indicated by the data presented in Table XXXIX.

Five comparisons may be made of the data in the following table: (1) each grade with the others, (2) boys with girls, (3) two schools, (4) the four types of construction, and (5) data from one series of compositions with combined data from seven compositions. Some of the comparisons mentioned lead to interesting suggestions concerning the development of sentence sense.

TABLE XXXIX

PERCENTAGE OF EACH TYPE OF CONSTRUCTION INDICATING FAULTY SENTENCE SENSE IN THE TOTAL NUMBER OF SENTENCES

Type of Construction	Sex	School*	III	IV	V	VI
Run-on	Boys	D _T	1.7	2.4	1.2	.5
		D _I	2.4	1.9	.3	..
		U	.6	...	.8	..
	Girls	D _T	.9	1.1	.3	.3
		D _I	1.1	.8	.3	.3
		U	...	...	.3	..
Dangling Phrase	Boys	D _T	1.8	1.1	1.9	1.9
		D _I	1.6	1.1	.3	1.5
		U	2.4	...	.4	...
	Girls	D _T	1.4	1.3	1.6	1.0
		D _I	2.1	.8	3.0	.6
		U	1.2	.6	.7	.4
Incorrect Designation of Sentence	Boys	D _T	1.3	2.1	1.6	1.0
		D _I	.4	4.6	.3	1.2
		U	...	...	.8	.5
	Girls	D _T	1.4	1.3	1.3	1.5
		D _I	.2	.8	.9	1.1
		U	...	...	...	.7
Omission of Period and Capital Letter	Boys	D _T	14.1	22.8	24.3	18.1
		D _I	21.1	23.2	25.5	18.5
		U	7.2	10.4	6.7	11.0
	Girls	D _T	15.5	14.6	18.7	13.0
		D _I	17.5	15.9	21.4	15.0
		U	7.1	4.8	8.5	6.0

*D_T - Seven series Dixon school.

D_I - Series one, Dixon school.

U - Series one, University school.

The most reliable percentages of course are those based on the seven series of compositions. As a basis for other comparisons the variation in percentage frequency in the different grades provide a convenient standard.

It seems clearly apparent that the percentage of run-on

sentences in the total amount written by both boys and girls of the Dixon school, shown in the rows marked D_T, decreases abruptly in the fifth grade. The decrease is considerably greater in the case of the girls than in the case of the boys, but the evidence points to the conclusion that the children of the Dixon school in the fifth and sixth grades use appreciably fewer run-on sentences than do the children of the third and fourth grades. In all four grades the girls use fewer run-on sentences than do the boys.

There appears to be no appreciable difference in the proportion of dangling phrases used in the different grades either by boys or by girls. The same is true of the frequency of use of clauses or phrases designated as independent sentences.

In all of the three types of failure to designate sentences properly the frequency of occurrence is very decidedly less than in the omission of proper punctuation and capitalization. Indeed, the frequencies of the three types combined do not in any grade equal one-fourth the frequency of the fourth type. This striking disparity is significant in view of the fact that the fourth type of error is not failure to conceive and express entirely adequate and proper sentences from the standpoint of content and meaning, but only failure to use the conventional signs required to designate to the reader the end of one sentence and the beginning of the next. This error is very similar in character to misspelling. The children whose papers were studied used with perfect accuracy and with apparent ease and facility numerous words which they spelled with

conspicuous originality, for example, kind, cind; stayed, stade; rubber, ruppert. The child's error, or rather his lack of learning, both in the case of misspelling and in designating the beginning and end of his sentences, is not a lack of meaning, a misapprehension of meaning, not a confusion of ideas or lack of order in the organization of ideas, or lack of clarity and precision in the expression of his thought. The substance of the thought and the essential language forms in which the thought is expressed quite evidently have been more fully matured through the experience of oral speech than has the use of conventional signs such as periods and capital letters which only incidentally and indirectly contribute to precision in written expression.

Table XXXIX presents comparable data for the Dixon school and for the University Elementary school on series one of the compositions, "My Favorite Game or Sport." As in the total number of sentences written in seven compositions the children of the fifth and sixth grades of the Dixon school use in the compositions of series 1 appreciably fewer run-on sentences than do the children of the third and fourth grades.

The children of the University school, however, in all four grades use so few run-on sentences that the percentages are negligible. In fact in grades IV and VI the boys used none; in grades III, IV and VI no run-on sentences appeared in the girls' papers. The reason for the superiority of the University children in the elimination of the run-on sentence from their written expression cannot be determined from the information

available. However, one feature of the instructional policy of the University school is to require frequent use of carefully planned written expression in the study of the content subjects. It is known that the teachers make a consistent effort to eliminate the run-on sentence, but the causal relationship between this fact and the very rare occurrence of the objectionable form has not been definitely established.

In each of the other three types of evidence relating to sentence sense, the University children show consistent superiority. The probable error of the difference between schools was computed for the omission of period and capital letter in each grade. The probable errors are presented in Table XL.

TABLE XL

SCHOOL DIFFERENCES IN THE PERCENTAGE FREQUENCY OF
OMISSION OF PERIOD AND CAPITAL LETTER

Type of Construction	School Groups Compared	III				IV		
		Sex	Diff.	P.E.	Diff. P.E.	Diff.	P.E.	Diff. P.E.
Omission of Period and Capital Letter	D - U	M	13.9	2.2	6.3	12.8	2.9	4.4
	D - U	F	10.4	1.8	5.8	11.1	1.7	6.5

TABLE XL (continued)

Type of Construction	School Groups Compared	V				VI		
		Sex	Diff.	P.E.	Diff. P.E.	Diff.	P.E.	Diff. P.E.
Omission of Period and Capital Letter	D - U	M	18.8	1.8	10.4	7.5	2.0	3.8
	D - U	F	12.9	1.8	6.8	9.0	1.6	5.6

The frequency of the total absence of run-on sentences, dangling phrases, and incorrect designation of sentences in the University grades is sufficiently great to indicate some superiority in the use of those constructions.

The instructional practice of the University school seems to be a plausible explanation of the observed differences in pupils' control over sentence form in written expression. Assuming this possible explanation to be a valid one, it seems reasonable to conclude that children can be taught from the time they begin to use written expression to formulate sentences with an exceedingly small percentage of the types of errors studied in the present investigation.

Summary

The analysis of gross elements of sentence structure in the written expression studied revealed a consistent and significant development from grade to grade between third and sixth in the proportions of simple and complex sentences. The ratio of simple sentences to the total number written decreased from about 55 per cent in the third grade to about 43 per cent in the sixth. The ratio of complex sentences to the total number of sentences increased from about 28 per cent to about 36 per cent between third and sixth grade. The use of complex-compound sentences increased from about 6 per cent to 11 per cent for the period studied. No significant trend in the use of compound sentences was determined, although there is some reason for thinking that compounds using and may decrease and those

using but as the conjunction may increase with advance in school grade.

Sex differences in the proportion of simple and complex sentences used show a superiority of girls in all grades except the third, that is, the proportion of simple sentences is smaller and the proportion of complex sentences is larger. Perhaps equally significant is the fact that the amount of difference in the proportion of both simple and complex sentences increases with advance in grade.

The proportions of noun and adjective clauses in the total number of sentences written increased consistently from third to sixth grade. No consistent trend in the use of adverbial clauses was revealed, although it is probable that a tabulation of eight or ten times as many sentences as were used in the present study might show significant development in the use of certain types of adverbial clauses, such as purpose and concession, for example.

The ratio of run-on sentences to the total number of sentences decreased very decidedly after the fourth grade in the Dixon school. The run-on sentence scarcely appeared in the University papers. By far the commonest indication of faulty sentence sense was the omission of the period and capital letter. The frequency of occurrence of this error was roughly twice as great in the Dixon school as in the University school.

CHAPTER V

SENTENCE STRUCTURE: SUPPLEMENTARY DATA

Although the statistical data show some differences in the structure of the sentences written by older and more advanced children of the elementary school as compared with those written by the less mature, there seemed to the investigator in reading and re-reading the papers to be other and perhaps even more significant differences in more refined aspects of sentence structure. A number of collections of sentences which seemed to suggest fruitful results were compiled and analyzed. In the present chapter six groups of sentences with certain suggestions concerning their possible significance are presented. The six groups have been organized under the following categories: (1) persistence of sentence form, (2) inverted order of subject and predicate, (3) use of quotations, (4) verbal phrases, (5) compounds of unrelated members, and (6) misplaced modifiers.

Persistence of Sentence Form

During the reading of the papers it appeared that occasionally a particular form of expression was repeated a number of times in the same composition. To test the possible significance of these examples of expressional perseveration all observed instances in which some form of expression was used in three consecutive sentences were copied and classified. A few examples will serve to make clear the nature of the data

under consideration.

1

I like to ride on a horse a very lot.
it is a lot of fun.

I like to ride in an airplane to.
it is a lot of fun to.

I like to ride on a steam boat to.
it is a lot of fun to. -Boy, III B

2

Summer is better than winter.
I like to skate in summer.
I can play tennis.
I can play football.
I can play baseball in summer. -Boy, III B

3

I enjoyed your letter. I am sorry you can not come
any more. I enjoyed your tests you gave us. I had lots
of fun during the vacation time. -Boy, III B

4

And you go around a lots of times.
And there is pretty music.
And it is fun.
And it gets you dizzy.
And I always go on a horse.
And it feels like a real horse. -Girl, III B

5

I had a ride on a elevator.
It is lot of fun to ride on a elevator.
I like to ride on a elevator. -Girl, III B

6

Once I went to soldier's field. I saw golden gloves.
I saw some men wrestling. And it was lots of fun to watch
them. I like to see them wrestle. I like to wrestle. I
like to go to the stadium. -Boy, IV B

7

This is what I did last week. Last week I cleaned
the carpets for my mother, and washed the dishes for my mother,
and dried the dishes for my mother and washed the ceiling for
my mother. -Boy, IV A

8

Summer is better than winter because in summer you can swim and winter you can't. And in winter you can go ice skating and summer you can't.

In winter you can go sled riding and in summer you can't.

In summer you can roller skate and in winter you can't.
-Girl, IV B

9

I think summer is better in some ways. In summer I can roller skate and in winter I can not. But in winter I ice skate and in summer I cannot.

I can swim in summer and in winter I can't. In winter I use my sled and in summer I can't use a sled. In summer I go horse back riding and in winter I go sleigh riding. -Girl, V B

10

On Monday I played in the morning and my cousin came over in the afternoon. On Tuesday we had company all day. On Wednesday we went to Ford City to visit my aunt. On Thursday and Friday I just stayed home and helped my mother. On Saturday we celebrated my birthday which was really on Sunday. On Sunday we had company. -Girl, V B

11

Carrots and candy are good for the health.
true

Carrots are better than candy.

Carrots have iron in them.

Carrots make your body strong and healthy.

false

Well you have to have a little candy.

Well candy has sugar and a little sugar don't hurt.

Well your body has to have sweet things too. -Girl, VI A

It is clear that in some examples more than one element of expression recurs in successive sentences. In the sixth example quoted above there are seven simple sentences, six of them have I as the subject, and three use the same verb, like, in the predicate. Two sentences use the same subject and verb, I saw. It is not difficult to think that I saw would have persisted for a number of repetitions, if the writer had recalled readily at the time he was writing other objects or events which

he did see in connection with the occasion he was discussing.

Two analyses of the data were made, sex and grade distribution of frequency of occurrence and the nature of the recurring forms. Table XLI presents the results of the first analysis. It shows the frequency of occurrence of persistence of form in each grade.

TABLE XLI

NUMBER OF COMPOSITIONS AND PERCENTAGE OF OCCURRENCE OF
PERSISTENCE OF FORM IN GRADES III, IV, V,
AND VI OF THE DIXON SCHOOL

Sex	III		IV		V		VI		Total
	f	p	f	p	f	p	f	p	
Boys.....	9	56	4	25	..	..	3	19	16
Girls.....	16	52	7	23	3	10	5	16	31
Both.....	25	53	11	23	3	6	8	17	47

The most obvious fact revealed by Table XLI is, of course that the number of occurrences of persistence of form is too small to warrant the drawing of a satisfactory conclusion. However, the fact that 50 per cent of all instances observed occurred in the third grade suggests at least that persistence of form in written expression is peculiar to the very immature writer. This suggestion is further corroborated by the fact that an additional 25 per cent of the occurrence of the type were found in the fourth grade. The percentages, although based upon a very small number of instances, gain additional suggestiveness from the fact that only 19.6 per cent of the total number of sentences were written in the third grade. The percentage of the total number of sentences written in each

of the other grades was, IV, 24.8 per cent; V, 25.3 per cent; VI, 30.3.

The second analysis of the data on persistence of form was an attempt to determine the nature of the element of the sentence which was repeated. Table XLII presents the frequency of occurrence of different types of recurring elements.

TABLE XLII

NUMBER OF COMPOSITIONS IN WHICH DIFFERENT TYPES OF
RECURRING ELEMENTS IN SENTENCES OCCURRED

Recurring Element	III	IV	V	VI	Total
Subject.....	13	3	..	2	18
Prepositional Phrase at Beginning of Sentence.....	1	1	2	3	7
<u>Then, And, Well</u> or Adverbial noun at Beginning of Sentence.....	3	5	1	2	11
Total Number Repeating initial Words of Sentence.....	17	9	3	7	36
Other Forms.....	6	1	..	1	8
Total.....	23	10	3	8	44

It appears from the facts shown in Table XLII that in a very large proportion of the compositions in which there is persistence of form the recurring element occurs at the beginning of the sentence. The proportion more accurately expressed is 36/44 or 82 per cent. To be sure no great reliance can be placed in this percentage because of the limited number of instances from which it is derived, but the size of the figure strongly suggests that, among the children who showed an ex-

pressional perserveration, it was the initial words of the sentence, whether subject or other member, that tended to persist in succeeding sentences.

Further analysis shows that in many instances the recurring subject was followed by a recurring verb, as I like. The ratios of the number of recurring verbs to the number of recurring subjects are, Grade III, 11/16; IV, 4/5; V, 1/1; VI, 2/5; all grades 19/27 or .7. These figures indicate that there was a pronounced tendency for the recurring form to include a verb. In the total number of recurring forms, 56, 38 per cent were verbs, and 48 per cent were subjects.

The suggestion which this meager but interesting evidence makes is that the subject, frequently also the essential portion of the assertion made about the subject, and the initial words of his written statement generally, constitute so dominant an idea in the immature child's mind that repetition is the major or sole pattern for the organization of his thought. The fact that only 56 instances were found in a total of more than fifteen thousand sentences indicates that simple repetition is seldom used even in the third grade.

Inverted Order of Subject and Predicate

Evidence similar to that discussed in the preceding paragraphs was obtained from an examination of the sentences in which the subject followed the predicate. Typical examples of children's use of inverted order are given below.

I was sick a week afterwards and so was my daddy sick.
-Girl, III B

I could not go to school nor could I run and play like other children. -Girl, III A

And in came Dad from work. -Girl, IV A

"Well," said Uncle Ben, "let's go." -Girl, VI B

I got in and away went the calf. -Girl, VI A

The frequency of occurrence of inverted order in each grade is given in Table XLIII.

TABLE XLIII

FREQUENCY AND PERCENTAGE OF OCCURRENCE OF INVERTED ORDER
IN GRADES III, IV, V, AND VI OF THE DIXON SCHOOL

Sex	III		IV		V		VI		Total
	f	p	f	p	f	p	f	p	
Boys.....	..	..	1	25	1	25	2	50	4
Girls.....	5	21	2	8	5	21	12	50	24
Both.....	5	18	3	11	6	21	14	50	28

Again it must be admitted that 28 cases furnish meager data upon which to establish a conclusion. When, however, 14 of the 28 examples found in more than 2400 compositions occur in the sixth grade, the observer is strongly impelled to think that the use of inverted order is a significant mark of maturity in written expression, even though the construction occurs so infrequently that it provides no measure of maturity. Eighteen additional instances of inverted order were found but not reported in the preceding table because they were judged to be slang and, therefore, to require separate treatment. The following sentences are quoted to show the use of inverted order as slang.

It was a young horse and O, boy, could he run.
Boy, was I lucky.

He kicked the nag in the ribs and did he go!
Did I hang on to keep me from going to the bottom.
Oh boy, do I love raw carrots.
Oooo, were they sour.
Was I ever glad.

By this time the tire was fixed, and weren't we glad to get home, even though we did not get our flowers.

The entire number of examples like the foregoing were found in the fifth and sixth grades. More than 80 per cent of the total number of uses of inverted order including slang occurred in the fifth and sixth grades.

Slang.—Besides the expressions in inverted order such as, "Did we go!" forty other items of slang were collected. Fifteen of the number occurred in the girls' papers, 25 in the boys. Twenty-one of the expressions classified as slang were found in the sixth grade and fourteen in the fifth. There were four in the fourth grade and two in the third. The great preponderance of the slang used in the papers studied was found in the upper grades. This fact may be considered another item of evidence indicating the reduced restraint, greater freedom from language inhibitions, and the increased facility and fluency of the older children.

Less variety and consequently less refinement in meaning—less choice in points of emphasis—are characteristic of the writing of the younger child. He says whatever he has to say simply, directly, and in the most conventional and most frequently practiced form because that form is the only one available or because it is most convenient and most economical of mental energy. The inception of inverted order signifies a degree of mastery over language which enables the writer to

give emphasis to one idea or constituent part of his thought by increasing the prominence of its position. To do this requires a span of attention sufficiently great to allow for some choice and reorganization of sentence elements before they are expressed.

Use of Quotations

All papers from the Dixon school were carefully read for the purpose of selecting quotations. The number of direct and the number of indirect quotations were tabulated, and all divided quotations were separately counted. The frequency of occurrence of each of the three types of quotations is exhibited in Table XLIV.

TABLE XLIV

NUMBER OF EACH OF THREE TYPES OF QUOTATION USED BY
BOYS AND BY GIRLS IN GRADES III, IV, V, AND
VI OF THE DIXON SCHOOL

Type of Quotation	Sex	III	IV	V	VI
Indirect.....	Boys	21	53	28	104
	Girls	77	97	84	85
Direct.....	Boys	26	29	34	79
	Girls	52	88	89	92
Divided.....	Boys	..	..	..	..
	Girls	..	1	5	8

The data in the foregoing table do not point to any definite conclusion. They do suggest the possibility of a sex difference in the frequency of use of quotations and the probability that divided quotations are used only by the more mature writers among elementary school pupils.

Verbal Phrases

As possible evidence bearing upon growth in refinement of expression certain types of verbal constructions were selected. All papers collected from the Dixon school were read for the purpose. Several types, other than those reported, were found, but only the more suggestive are presented. The number of occurrences of six types of use of verbal constructions in the compositions of each grade is presented in Table XLV.

TABLE XLV

NUMBER OF OCCURRENCES OF EACH OF SIX USES OF VERBAL PHRASES
IN THE WRITTEN EXPRESSION OF THE PUPILS OF GRADES
III, IV, V, AND VI OF THE DIXON SCHOOL

Type of Construction	III	IV	V	VI
Participles after verbs of perception.....	8	28	14	36
Participial phrase as an abridged relative clause	9	13	12	25
Participial phrase as an abridged adverbial clause.....	2	5	9	20
Gerund as object of preposition and having adverbial significance....	2	2	6	12
Predicative adnominal adjunct.....	3	14	10	29
Predicate adjective after verbs of motion and rest	3	..	3	12

For ready understanding of the meaning of the table exhibited above, the items in the first column may require some illustration. Accordingly, two illustrations of each construction are quoted below.

Participles after verbs of perception:

We saw a big monkey teaching a baby monkey to do some tricks.

Then all of a sudden I smelled something burning.

Participial phrase as an abridged relative clause:

The people looked just like little bugs crawling along.
The advocates of low license favored a small fee,
levied for revenue only.

Participial phrase as an abridged adverbial clause:

My mother having missed me started to look for me.
Tennis gives you exercise when serving, hitting the
ball or running after it.

Gerund as the object of a preposition and having adverbial significance:

Finally, after staying at the airport a while, my father
said, "How would you like to go up?"
They also test the milk before delivering it to us.

Predicative adnominal adjunct:

I was very proud of myself riding on the merry-go-round.
In the mornings I worked in the yard planting flowers
and cleaning up the yard.

Predicate adjective after verbs of motion and rest:

I sat in the saddle waiting for the horse to go, but it
didn't move.
I was yelling, "Help! Help!," but she just stood there
laughing.

Whereas the number of sentences written by sixth grade pupils was approximately 50 per cent greater than the number written by the third grade, the increase in the frequency of occurrence of certain verbal phrases was 400 to 1000 per cent. It is interesting to note that all six of the types of construction were found in the third grade papers. The evidence indicates a marked growth between third and sixth grades in the use of verbal phrases, particularly the second, third, and fourth

types which may be regarded as substitutes for complete propositions.

Compounds of Unrelated Members

Apparently children are accustomed in oral speech to language as a somewhat continuous flow of expression. At least the continuity of it and the connectedness of its constituent elements are more impressive and more prominent in habitual use of language than are the divisions into discrete sentences. The view just expressed is especially well illustrated in written expression by the run-on sentence. The tendency toward maintaining a continuity and connectedness in expression is also represented by compounding utterly unrelated members in the same sentence. A few examples will serve to illustrate the incongruity of meanings of two or more propositions incorporated in the form of one compound sentence.

The other day when I played baseball I hit two home runs and the other day as I said well there was six boys playing then. -Boy, III B

I'll fly about one hundred feet high, and have a hanger for it. -Boy, III A

When Saturday came we had a ball game and when the game was over we all got a drink of water and the score was 32 to 13. -Boy, IV A

The score was 8 to 4 and when Sunday came why we went to Lake Michigan. -Boy, V B

I was helping mother carry out useless things and it is a pity that boys do all the work and the girls play. -Boy, VI A

My sister is a big girl but I like my doll better than I like hers. -Birl, III A

I went to New York one summer and my mother way laying on the back seat resting. -Girl, III A

The sun had come out after it rained for two hours and I asked my mother if I may hold the reins. -Girl, III A

But my how they were roaring and I never heard a cat roaring like that. -Girl, IV A

After they (monkeys) made up and started dancing so next summer when we go there we are going to see the fish. -Girl, V A

My skates are very good skates but you can never tell what will happen until it does. -Girl, VI A

I made friends that afternoon, and slept in the highest berth. -Girl, VI A

The number of instances of the foregoing type of construction found was small, but the number which were to some degree related to the more or less clearly defined type quoted above was very much larger. The particularly striking examples of incongruous relationship between members in compound constructions may, therefore, be regarded as evidences of a tendency in the development of expression.

Among the instances which conform strictly to the type illustrated above 10 were found in the third grade, 7 in the fourth, and 5 each in the fifth and sixth grades. It is, of course, to be regretted that only 27 examples could be sufficiently well characterized to provide a reasonably objective classification. In so far, however, as the figures available indicate a trend, children make more meaningful combinations of independent clauses as they progress through the grades.

Misplaced Modifiers

Certain irregular constructions which betray a degree of immaturity were occasionally found. They suggest that in the

mind of the writer there is some urge to use qualifying words, phrases, and clauses even though he lacks the critical, analytical ability to arrange all members of his sentence in the best order while he writes. No evidence is available to indicate whether or not upon re-reading the children who badly misplaced certain modifiers were able to improve their sentences by rearranging the position of the modifiers. It is entirely possible that all instances of the type of construction now under consideration are the result of the same sort of momentary confusion of ideas to which even highly trained, professional writers are subject. If the suggestion of the preceding sentence is a valid one, evidently the children lack the habit of critical examination of their writing to determine whether or not it conforms to their own best standards.

The examples found of misplaced prepositional phrases are quoted below.

But I told my father, mother, and the rest of the family a long story of what happened that day to me. -Girl, III A

Most of the girls like it on our block. -Girl, IV A

We usually play on summer nights with the older children. -Girl, V A

We rented a real old hotel with some other friends at Flint Lake. -Girl, VI A

We passed several cascades on the way to Madison, Indiana on the Ohio river. -Girl, VI B

One time I got out of Cracker Jack a tin clock. -Girl, III B

We can tell how to play marbles to our friend and then he can play marbles with me. -Boy, IV A

If you do not have enough tail on windy days on some kites, they will take a nose dive and sometimes break. -Boy, V A

I was riding along a field into which the bridle path led with my father. -Boy, VI A

In the picture a man called Bardell shot down a German zeppelin which was bombing London with both his legs paralyzed from a crash. -Boy, III A

There appears to be no grade difference in the frequency of occurrence of misplaced prepositional phrases. This fact and the fact that so few examples were found suggest that the explanation is probably to be found in momentary confusion combined with failure to apply criticism. Another possible explanation is that control over this form of modifier is gained before the child begins to write.

Examples of adverbs misplaced in relation to the word they modify are contained in the following sentences.

I like to play farmer in the dell the best. -Girl, III B

You must learn to skate fast and learn to skate slow and know how to especially coast on your roller skates. -Girl, III A

Outside my girl friends and I like to play jump rope. -Girl, IV B

After dinner we go to the show with our skates sometimes. -Girl, IV B

When I learned how to swim, I swallowed almost the lake, but now I can swim. -Girl, V A

It is played in February most. -Girl, V B

I have been trying to do those tests you were giving us very hard. -Girl, V B

I like best of all is to play golf and my friends too like it. -Boy, III A

Candy is only good for children after supper. -Boy, III A

I like to go often there. -Boy, V A

I hope many more times I shall help mother clean up.
-Boy, VI A

We most of the time win. -Girl, VI A

One day my mother said she is going for a minute out,
so she went out. -Girl, IV B

In all the examples cited above there is clearly an obscuring of the meaning by the position of the adverb in the sentence. In the following examples the adverb is placed before the verb which it modifies, whereas the simplest and most direct form of expressing the idea would be to place the adverb after the verb. The position given, however, adds both variety and emphasis to the expression. These of course are not misplaced but are cited because they suggest that in the shifting about of his adverbs the child is learning to use them to good effect as well as bad.

All week I played baseball. -Boy, IV A

We later learned we were at Wolf Lake. -Boy, VI A

The boat was quite shaky and over I fell. -Girl, VI B

So up we went. -Girl, VI A

That day I had a very nice time. -Girl, VI B

Down, down I went. -Girl, IV A

One day my mother said she is going for a minute out, so she went out. -Girl, IV B

And in came Dad from work. -Girl, IV A

About nine o'clock we went home. -Girl, VI B

Another type of misplaced modifier is the adjective clause removed from the noun it modifies. Examples of this type of

construction are presented in the following sentences.

When the person misses who is jumping, this person has to take an end until someone else misses. -Girl, III A

Every Sunday my father and I go out ice-skating that it is cold. -Girl, VI A

My father takes me in the wagon every day in the summer that we go to the country. -Girl, IV B

We went for a auto ride there that had a city on the back. The city on the back of my car was Chicago. -Girl, IV B

When you go to your lockers when there is a fire drill the other children knock your clothes on the floor that are in the locker with you. -Girl, IV A

If I feel somebody I call the person's name in which I think it is and if that is the person's name, she must be it. -Girl, IV A

The boys' name I play with names are P, B, J, J, B, and F. -Boy, III A

Another boy tackled me and I fell on the boy's knew that was running and nearly broke his leg and it was lucky for me that it didn't. -Boy, IV A

Later when we were going home we saw a great big bridge over head which the people coming to the pier were walking. -Boy, VI A

It is built of white stone which when finished will hold many interesting fish. -Boy, VI A

I saw our cat tossing a dead rat in the air which he had caught. -Boy, IV A

We started to play when the Cubs had the second game with Pittsburg which I lost and the others I won. -Boy, IV A

An automobile must have a license because if a person went to a large store and parked his car, another person might park his car near it which was exactly like the other car. -Boy, V A

It is clear that some of the few examples noted occur in each grade. The most plausible explanation for the occurrence of this construction seems to be that the relationship of ideas

was perfectly clear in the mind of the writer and he merely failed to recognize that his form of expression obscured the meaning of the modified term rather than clarified it. In some instances in which the clause is removed from the word which it modifies it is very probable that the whole organization of the sentence was in the mind of the writer but that firmly fixed habits in simpler forms of expression intervened to determine the position of predicate or some modifier. For example, "When you learn to roller skate, you must have somebody teach you that knows how to skate." "I asked her if I could have one of my best friends over whose name is L-- J-- H--." To change the order of the first sentence, "you must have teach you somebody that--," or to withhold the assertion "teach you" until the long adjective clause is expressed is in a sense a violation of the frequently practiced habit of simple, direct statement such as, "you must have somebody teach you." The second sentence involves a similar failure to place a term, in this case an adverb, in an unfamiliar position in the sentence in order to accommodate the expression of clear relationship between noun and adjective clause.

Children are apparently much more practical than critical in their attitude toward language. They use no more precise expression than is required to convey the essential meaning with which they are concerned even though they are fully capable of a more refined thinking than some sentences would imply. Substantially all the examples of misplaced modifiers are instances in point. Note also the following.

I put some buttons down the front made of coal.

I think that carrots are good for growing children cooked or raw.

Other evidence of the tendency of children to draw together as compactly as possible the essential elements comprising their statements is indicated in the irregular position given to objects in certain sentences. The following are examples.

In our school I think there should be some men teachers because the ladies none of the boys like for gym.

I did but the others I don't know about.

In the first sentence men teachers and the alternative must apparently be as directly contrasted as possible. Similarly, in the second sentence I and the others are conceived in a contrasting relationship and they are, consequently, placed as close together as possible in the sentence with whatever other elements may be necessary to complete the thought attached as best they may be.

In the two following sentences there appears to be evidence of the same tendency to emphasize the contrast of two ideas by bringing the two key-words required for the expression of the idea as close together as possible.

For a hard ball you need a glove to catch it with, but a soft ball you can catch with your bare hands.

I think arithmetic is more valuable than reading because reading people can learn easy.

Most examples of irregularly placed objects were those in which the object was placed at the beginning of the sentence either to relate the dominant idea in the sentence to a previous

thought or to emphasize the idea represented in the object of the sentence. Examples of the first sort are represented in the following sentences.

The rest of the time I spent eating ice cream cones and playing baseball.

The next few days I spent helping to fix my mother's garden and I also played baseball.

But glass you can find anywhere.

So each question I protect. (I support or defend both views)

The following sentences contain objects in the initial words. The order is evidently determined by the dominance of the idea in the object over the assertion.

Hide and seek I like best because I am hardly (ever) it.
-Girl, V B

The elephants and bears I liked very much. -Girl, IV A

What if he should throw me, I thought, forgetting the man said he was gentle. -Girl, V A

The things that you taught us I want to thank you for.
-Girl, V B

Marbles is a great thing, I think. -Boy, V A

The instances of irregular order of the objects of verbs and of prepositions suggest two comments concerning the mental functioning which produced them. In the first place they all suggest a striving toward maturity of thought, and in the second place they all reflect in the awkwardness of expression the limited experience of the writers with the function attempted. There is the immaturity of impulsiveness in each sentence, a putting of first ideas first in expression without weighing the remaining essential elements of the thought. If the receiver

of the action is a peculiarly dominant element in the conception of the thought, it is, as indicated in the examples cited, directly and abruptly named.

Summary

The data presented in the present chapter, although not statistically reliable, are, nevertheless, very suggestive of certain aspects of development in the structure of sentences used in the writing of children. In so far as the data available may be regarded as significant it appears that persistence of form in written expression is peculiar to the immature writer of the third and fourth grades, and very rarely occurs later. The recurring element most frequently is the subject of a sentence or subject and verb. The use of inverted order including slang phrases was found predominantly in the fifth and sixth grades. Approximately 80 per cent of all instances found occurred in the two upper grades. Other slang phrases also were conspicuously more frequent in the papers of the fifth and sixth grade pupils. Some evidence was found to indicate that older children combine unrelated or incongruous elements by the use of coordinate conjunctions less frequently than do younger children. The data available do not point clearly to a development in control over the position of modifiers, although the instances of lack of control do indicate a characteristic of immaturity. This characteristic was described as an impulsive tendency to bring as closely together as possible the words representing the dominant ideas of the writer.

The nature of the development in written expression as indicated by the data presented in this chapter, is a tendency toward the elimination of persistence of form and increased facility in the use of varied and refined constructions such as inverted order and certain participial phrases.

CHAPTER VI

ANALYSIS OF CONTENT

The data relating to amount of writing and to the structure of sentences are, of course, entirely inadequate to characterize the nature of language development. Although the present study is not intended to be a complete analysis of even the language used in written expression, the attempt was made to secure evidence concerning the development of a variety of phases of language as children use it in writing. A number of types of data were collected as a basis for studying certain aspects of the content of children's written expression. These data will be presented in four classifications: (1) apprehension of word meaning, (2) ego-centrism, (3) recognition of relationship between clauses, and (4) growth of imagination.

Apprehension of Word Meaning

The first of the types of data to be presented is that relating to the apprehension of word meaning. Three types of evidence are presented; (1) unanalyzed word complexes, (2) pretentious use of words, (3) generality of meaning of nouns. Each of the preceding types of evidence is discussed in succeeding paragraphs.

Unanalyzed word complexes.—The tendency for oral speech to assume a vocally convenient form in units much larger than single words is abundantly illustrated by the frequency of occurrence of enclitic forms. I've, we're, they'll are so

acceptable in ordinary speech that their use passes unnoticed. Other examples of condensed or telescoped words can be readily called to mind: them contracted to 'em, dropping of final g, isn't, to or of spoken as a, etc. The tendency for oral speech to assume the form of a connected and continuous flow of sound evidently influences the form of written expression in some instances.

By the time that children begin to write they have of course apprehended correctly a great preponderance of the words necessary to express their ideas. The spelling in many instances may be quite original, and the connotations may sometimes be somewhat unusual, but words are clearly recognized as elements in language. In some instances, however, the words are not correctly apprehended. It is these exceptions which comprise the data for the present consideration.

The analyzed word complexes were classified in four categories according to the nature of the misapprehended form. The first and probably least significant class is improper compounds. Examples of words compounded improperly are, boyfriend, girlfriend, tipover, bothways, and roundring. Careful consideration of the meaning which the writer apparently wishes to convey by the terms quoted above suggests that to the mind of the user boyfriend or tipover are quite as legitimately conceived to be single words as, for example, sidewalk or overturn. If round-head or round-up are proper in form, why not roundring? Certainly the word is an entirely appropriate designation of a certain type of marble game. It seems entirely unjust to be

highly critical of the use of such words as those cited, when psychologically the writers who used them, in most cases at least, apparently had a very genuine need for the words as written. The writers clearly violated the conventions, but their misapprehension of the word forms reflects, if anything, a refinement of conception in ideas superior to the literal interpretation of the conventional forms.

A second class of misapprehended words may be characterized as words having attached prepositions or to, the sign of the infinitive. Typical examples found are, hasto, haveto, hafto, usto, goingto, sposto (supposed to), alote (a lot of), and kinda. The last two, of course, do not have attached prepositions in form, but, since the use and meaning require the preposition, they are classified here.

This type of error was thought to deserve a separate classification because of the familiarity of each of the component parts of each word complex. If the child's meaning requires the adverb too instead of the sign of the infinitive, to, he readily enough differentiates the two words. "You have, too!" Since the examples secured were found in all grades along with frequent use of the correct forms, it seems that these errors are probably best explained as lapses into the familiar oral form. There may of course be raised the question whether the errors merely represent carelessness in writing or whether the particular context used called for a particular form which to the mind of the writer is different from the combination of the familiar has and to.

In one case the investigator secured clear evidence that

the child who knew perfectly well the words has and to required another word in writing the sentence, "One child has to hold one end of the rope and the other child holds the other end." She asked for the spelling of hast. In reply to the inquiry concerning the statement she wished to write the child said, "One child hast a hold one end of the rope---." Evidently the a had been differentiated from the complex hasta, since the child asked for the spelling of hast, and indeed wrote hast, but the words has and to, which she wrote readily enough when told that they were correct for the expression of her idea, were apparently unknown to the child in the context in which she knew hast a.

This case is cited as an excellent illustration of the difficulty which a child encounters in learning the intricate and arbitrary complexities of language required to express in conventional written form the simplest and most familiar idea. Evidently in this case the child had misapprehended two of the most frequently used words in oral English speech.

A few words which seemed to require a third category in the classification were found. These are represented by such instances as the following: prnner, prittner, forentance, and a nother. These are clearly unanalyzed or incorrectly analyzed verbal symbols. The writers undoubtedly know pretty, the adjective, and nearly, the adverb as words. The idea, nearly, modified by the adverb of degree, pretty, is, unless critically analyzed, so nearly identical with the meaning of almost, that the child, who has not had his attention called to the two words

in print, but who has heard them used sufficiently frequently to be entirely familiar with their meaning, may be expected to conceive some such word as, prittner.

Three conditions point to an explanation of the occurrence of prittner. In the first place, it is quite more likely than not that the child knows pretty, the adjective, but not the adverb. Second, the meaning of nearly modified by the adverb, pretty, is so single a concept, so nearly synonymous with almost that a single word would appeal to the uncritical mind of a child as entirely adequate. Third, very probably the children who used prittner or prnner in writing were accustomed to hearing and to saying something which much more nearly approaches the pronunciation of the words written than the correct form, pretty nearly.

In the case of a nother the explanation is clearly overanalysis. The article a is more frequently used than the article an, phonetically it is somewhat easier to say a nother than an other, and the combining of an with another word is, aside from the instance under consideration, entirely unfamiliar. In view of the preceding statements it is not surprising that a nother should occur 29 times in the writing collected from the Dixon school and twice in the papers of the University school. Other evidence of confusion in the use of the term is indicated in the forms, and.nother, and other, an other, an nother.

Other interesting examples of the type just discussed are, horse backriding which occurred in the papers of three

different writers, inorder, and marryground.

A fourth category of misapprehended words may be illustrated by next stor (next door). Six different pupils used the term. The correct apprehension of the meaning next is evident from the context. Certainly one would not suspect that children 8 to 11 years of age, who are capable of making normal progress in school, have a totally inadequate or incorrect conception of store. The use of such an unusual term as next stor seems to be evidence of the uncritical acceptance of an arbitrary association of meaning with verbal symbols used in one context which is entirely different from their meaning in other familiar contexts. The child hears next door spoken in such a way that next stor or next store in written form express very adequately his conception of the term needed.

Other examples of substitutions of familiar words are, must of, once and a while, and other. One or two examples require the quoting of an entire sentence.

They had a big out door motor boat.

I always think the elevator is going to fall off the track.

We all tried to subject a place to go.

They won us twenty to sixty but we're going to play them again Saturday.

Then my mother down blow us gave a loud scream.

The last example may of course be explained as misspelling.

Pretentious use of words.—Occasionally in the reading of the papers a particular word impressed the investigator as being

very unusual for the maturity of the writer. Sometimes the word was well chosen and accurately fitted to the meaning of the rest of the sentence. In other instances the word suggested that the writer was making pretensions somewhat beyond his powers. He evidently was trying to bring a somewhat unfamiliar idea into sufficiently clear focus so that he could give it expression. The word used either betrayed a vagueness of conception or unfamiliarity with the precise meaning of the word.

A few examples of ideas thought to be quite mature for the age of the writers but very well expressed are quoted below.

You will be able to find data on movements of the planets around the sun. -Boy, VI A

I like to go to the museum because you can see the mummies and the big dinasoeses. -Girl, III A

He said he was in the same predicament. -Girl, VI A

Many years ago people found diamonds and were amazed at the glitter. -Boy, VI A

Mother had told me to look up and down the street before crossing but I had been careless and had not taken heed to my mother's warning. -Girl, V A

The following quotations contain words which seem to indicate that the writers were striving to extend the range of their expression and to enrich its content, but with conspicuously less success than in the preceding examples.

I put the ice in the pail and to my discovery the ice stay on the top. -Boy, V A

Pasteurizing is to kill the Bacteria germ. -Boy, VI B

The most interesting place in Chicago is to my opinion

the G. A. R. room of the Grand Army of the Republic. -Boy, VI A

Some people like winter better than summer partly because of the winter sports in which they may partake. -Girl, VI B

I think that summer is better than winter because in summer you can go swimming, and you can go out in the country and pick cherries and climb trees. Where is (whereas) in the winter you have those terrific snow storms. -Girl, VI A

So each question I protect. -Girl, V A

For most of last week I did nothing, but Sunday, however, friends took me to the Euclid Hills Golf Club. -Boy, VI A

When he got there (Europe) an officer demanded him to tell him what was in the basket. The man said he didn't have to tell him. The officer got very angry and demanded him to open the basket but yet the man refused to open it. -Boy, VI A

We had sizes (sides) and we were winning the other team. -Boy, V B

The fact that all examples of the type here quoted were found in the upper division of the fifth grade or in the sixth grade may be very significant. Are these pretentious uses of words an evidence of a budding ambition to assume the forms of adult expression, or do they merely signify the attainment of sufficient facility in the mechanics of handwriting, spelling, and other formal aspects of written expression, to allow some freedom and experimentation in the choice of words?

Evidence is not available to suggest a positive answer to the question. No doubt both factors mentioned may contribute to the pretentious use of words. If a peculiar interest in the acquisition of new words, or "big" words can be shown to appear at a particular stage of the child's development, the fact would have considerable significance for language teaching

including reading as well as expression.

Generality of meaning.—One of the attempts to discover evidence of maturity in the content of children's written expression was a classification of nouns according to varying degrees of generality of meaning. The six categories used in the classification were derived in the following manner. Five or six hundred nouns were taken in order of occurrence from papers of different grades and written on different subjects. From a study of the words comprising the list it was possible to classify them in six categories, each of which seemed to represent a somewhat higher degree of generality of meaning than the preceding one. Ten or twelve weeks later another list of nouns was similarly classified. The two sets of categories were carefully compared and contrasted. Each category was then re-defined having incorporated in it the best description of characteristics yielded by the two attempts at classification.

As finally used in the investigation the categories were defined and illustrated as follows:

Categories of Generality of Meaning of Nouns

I. Simple objects or acts, specific, concrete, individual, capable of being apprehended directly through a single sensory experience. Examples: house, Dad, water, jump.

II. Complex objects, institutions, conditions, occasions, or experiences implying a meaning derived from a variety of experiences. Example: home, ride, cold, chum.

III. Measures expressing temporal, spatial, locational, numerical concepts. Examples: mile, end, week, Wisconsin.

IV. Classes of specific objects and collective names. Examples: sports, people, kind, police.

V. Qualities, attributes, functions, characteristics, offices. Examples: length, stillness, coward, reason.

VI. Very general, comprehensive terms having a connotation of universality in meaning. Examples: truth, life, nature, death.

Certain words vary in generality of meaning depending upon the context in which they are used. In the sentence, A lady told us which way to go, lady would be classified in category I on the assumption that the word means a particular woman. In the sentence, No lady would do that, lady would be classified in category IV because of the implication of belonging to a class with certain common standards or characteristics. Similarly, coin may mean the concrete object, or in a slang phrase it may signify great wealth. Because of the variety in the meanings of many words, those nouns used in the present investigation were classified from context.

Reliability of classification.—In order to test the reliability of the scheme of classification two persons in addition to the investigator classified the 2094 nouns used in the compositions written by the girls of the University Elementary school. Each classifier having in hand the definitions of categories reported above worked independently. When the classified lists were brought together and compared it was at once apparent that each classification was different in one significant respect from the others. One classifier placed the names of games and sports in category I; the other classified three frequently used words in categories different from the lists of the investigator and of the third classifier. These discrepancies were corrected and the percentage of occurrence of nouns in each category of each of the three classifica-

tions was computed. These percentages are exhibited in Table XLVI.

TABLE XLVI

PERCENTAGE OF NOUNS IN COMPOSITIONS WRITTEN BY GIRLS OF THE UNIVERSITY ELEMENTARY SCHOOL CLASSIFIED ACCORDING TO GENERALITY OF MEANING BY THREE CLASSIFIERS

Categories of Generality	Classifier	III	IV	V	VI
I	W	35.6	23.6	33.8	27.0
	G	39.2	26.0	35.0	27.8
	F	34.5	22.4	34.3	24.1
II	W	21.5	36.7	33.1	31.7
	G	23.1	31.8	28.0	30.2
	F	23.9	38.4	32.8	36.2
III	W	12.9	24.2	18.5	15.5
	G	11.3	24.0	19.8	16.3
	F	12.1	22.4	16.8	15.7
IV	W	28.5	13.6	12.3	20.5
	G	24.9	16.6	15.2	19.3
	F	28.0	14.7	14.0	18.4
V	W	0.6	1.6	1.9	3.8
	G	0.6	1.4	1.7	4.8
	F	0.6	1.6	1.6	3.1
VI	W	0.9	0.3	0.3	1.5
	G	0.9	0.3	0.3	1.6
	F	0.9	0.5	0.4	2.5

The degree of agreement indicated by the percentage of nouns placed in any given category by the three classifiers is greater than was anticipated. The greatest difference appears in grade IV, category II between classifiers G and F. This difference is 2.8 times its probable error; it is, therefore, too large to be ignored, but since the next largest differences were only 1.5 to 2 times their probable errors and since any

inference drawn from one classification would be precisely the same as that from either of the others, the scheme of classifying was accepted as sufficiently reliable for the purpose intended.

The investigator classified all nouns except possessives used in series 1, 5, and 6 of the compositions written by the children of the Dixon school. The number classified extended in range from 1196 used by the boys in the third grade to 2460 used by the boys in the sixth grade. The total number of nouns classified was 14,747—6951 taken from the boys' papers, 7796 from the girls'.

The percentage of nouns in each category in each grade is presented for boys and for girls in Table XLVII.

TABLE XLVII

PERCENTAGE OF NOUNS IN SERIES 1, 5, AND 6 OF COMPOSITIONS
WRITTEN BY BOYS AND BY GIRLS OF THE DIXON SCHOOL CLASS-
IFIED ACCORDING TO GENERALITY OF MEANING

Categories of Generality	Sex	III	IV	V	VI
I	Boys	54.3	51.2	49.6	49.0
	Girls	56.0	54.0	51.7	51.9
II	Boys	25.1	23.8	25.7	20.2
	Girls	20.6	18.6	17.8	17.2
III	Boys	13.5	14.4	12.8	15.1
	Girls	13.6	16.4	17.6	15.1
IV	Boys	4.3	7.6	7.6	10.2
	Girls	6.0	6.8	8.3	8.6
V	Boys	1.9	2.4	3.4	4.3
	Girls	2.8	3.0	3.2	4.8
VI	Boys	.9	.7	1.0	1.3
	Girls	.9	1.3	1.4	2.5

The trend through the grades in the relative frequency of the use of nouns of different degrees of generality of meaning is clearly evident from the percentages shown in Table XLVII. The sixth grade girls used approximately 50 per cent more nouns than did the girls of the third grade and the boys of the sixth grade used more than twice as many as did the boys of the third grade. The proportions, however, of the concrete meanings as represented by categories I and II decrease consistently from lower grades to higher. The proportions of the more abstract meanings represented by categories IV, V, and VI increase from lower to higher grades with equal consistency and in equal, perhaps greater, degree. Category III apparently serves as a pivot on which the trend changes from a decrease to an increase, it being slightly inclined toward showing an increase.

The evidence points clearly to the conclusion that the older children used, among the nouns required to write the papers which were analyzed, a smaller proportion of the concrete type and a larger proportion of the more abstract type than did the younger children. Although the difference in the percentages of the two consecutive grades in typical cases in the lower categories is only from 1.3 to 1.8 times its probable error, the trend is with few insignificant exceptions entirely consistent. Among the higher categories the grade differences become undoubtedly significant, typical differences in categories IV and V being 2.3 to 2.8 times their probable errors.

Substantive ideas expressed in writing develop materially

between third and sixth grades in their scope of application. Younger children use in greater degree than do the older ones the specific concepts of concrete objects present to sense and particular, personal, individual acts, largely of the here-and-now sort. Older children use in greater degree than do the younger ones the more abstract and more extensively generalized meanings. One line of growth, then, clearly discernable in written expression of children is toward greater generality of meaning in substantive ideas. It is significant that some use of the highest types of meanings was made by the children of the third grade. The course of development, therefore, in the aspect of mental life under consideration, is change in degree, not in kind. By the time children have attained ability to express their ideas in writing they have already extended generalization in at least a few experiences to a high degree. The avenue of escape from the limitations of thinking in individual, particular, and concrete terms is already open to the broader applications of generalized meanings.

Ego-centrism

The preceding paragraphs of this chapter have dealt with various aspects of the apprehension of particular words. The present section deals with the degree of ego-centrism expressed in the compositions. Since most of the topics lent themselves to varying degrees of impersonality of treatment, it was thought that some feature of each paper would reflect that variability. After some exploratory examination of the papers, with the

present problem in mind, the investigator classified the subjects of the initial sentences and found a conspicuous percentage of I's.

The papers written on series 4 and 5 of the topics were not suitable for the present purpose because in almost all cases the child used as his initial sentence the statement chosen as the topic for the composition. In the remaining five series of papers the number of initial sentences having I as the subject were counted. The percentage of sentences having I as the subject in the total number of initial sentences is shown for each grade in Table XLVIII.

TABLE XLVIII

PERCENTAGE FREQUENCY OF THE USE OF I AS THE SUBJECT OF THE INITIAL SENTENCE IN FIVE SERIES OF COMPOSITIONS WRITTEN IN GRADES III, IV, V, AND VI OF THE DIXON SCHOOL

Sex	III	IV	V	VI
Boys.....	62.1	49.0	39.1	30.0
Girls.....	64.1	53.8	37.5	40.8

The percentages in the table exhibited above show a consistent decrease from grade to grade in the dominance of the ego in the initial statement of a series of compositions written by boys, and an almost parallel trend in the compositions of girls of grades three, four, and five. Examination of the data for each series of compositions showed that the variation of sixth grade girls from the trend in the preceding grades and from all grades of the boys was caused by some factor in

series 3 and 7 of the compositions. Re-reading of these two series of papers revealed a frequent use of I, particularly in the upper grades, which was less ego-centric in character than in other uses.

If, in writing on the topic, "The Most Interesting Place in Chicago," a child's first sentence is, "I went to the zoo," it is clear that the ego is well to the fore. If, on the other hand, he writes, "I think that the airport is a very interesting place," it must be admitted that in view of the topic assigned some assertion of a judgment supercedes or at any rate accompanies the expression of ego-centrism. A very marked increase in the use of the principal clause, I think, was found in the upper grades as compared with the number found in the lower grades.

Similarly, the letters, series 7, were found to contain a use of I which increased with advance in grade and therefore ran contrary to the trend in other series. This use was, "I am sorry....," which very clearly subordinates I to the cause, condition, or circumstance for which the writer is sorry. Since the expression occurred in letters, it may be regarded as distinctly social in character rather than ego-centric.

A second tabulation of the number of initial sentences having I as the subject, but eliminating those followed by the predicate "think" or "am sorry" produced the data for the percentages shown in Table XLIX.

The evidence of Table XLIX clearly indicates a decrease from grade to grade in the dominance of I in the first thought

TABLE XLIX

PERCENTAGE FREQUENCY OF INITIAL SENTENCES IN FIVE SERIES OF COMPOSITIONS WRITTEN IN GRADES III, IV, V, AND VI HAVING I AS THE SUBJECT EXCEPTING THOSE FOLLOWED BY "THINK" OR "AM SORRY"

Sex	III	IV	V	VI
Boys.....	57.9	45.0	33.2	21.5
Girls.....	58.4	43.3	31.0	23.3

expressed in the compositions. By inference, of course, this means an increase in impersonality in written expression as the writer advances in school grade. The significance of the grade differences is expressed in the ratios of Table L.

TABLE L

GRADE DIFFERENCES IN PERCENTAGE FREQUENCY OF THE USE OF I AS THE SUBJECT OF INITIAL SENTENCES

Grade Groups Compared in Percentage Frequency	Boys			Girls		
	Diff.	P.E.	Diff. P.E.	Diff.	P.E.	Diff. P.E.
$P_{III} - P_{IV}$	12.9	3.4	3.5	15.1	3.1	4.9
$P_{IV} - P_V$	11.8	3.1	3.8	12.3	3.1	4.0
$P_V - P_{VI}$	11.7	2.7	4.3	7.7	3.0	2.6

The grade differences are undoubtedly significant. The greatest sex difference, which occurred in the fifth grade, was only .73 times its probable error. The evidence available, therefore, indicates an absence of sex difference in egocentrism.

Recognition of Relationship Between Clauses

In order to secure some indication of the ability to re-

cognize the implied relationship between clauses written as separate sentences a brief test was devised. The test was given to the children of the Dixon school. It was finally used in the form quoted below.

CLAUSE USAGE TEST

Here is a story that a boy wrote about his dog. You are to re-write the same story using your own sentences. You may use different words and different sentences, if you need to, but try to tell the same story.

Bob's Dog

Bob likes his dog. He is a good playmate. Bob throws sticks. The dog catches them. He is a smart dog. I think he is. He likes to do tricks. Bob taught him to do them. Sometimes Bob tries to hide from him. The dog always finds him. He is brown. I think it is a pretty color for a dog. His tongue hangs out of his mouth. He barks at strangers. He is hungry. Bob feeds him. He is such a lively fellow. Bob calls him, "Friskey."

Complete and usable test records were secured from 494 children, 120 in the third grade, 119 in the fourth, 128 in the fifth and 127 in the sixth. Scoring and tabulating were done in a way to show the number of correct responses to each indicated relationship. Those responses were counted correct which were in substantial agreement with the following.

1. Bob likes his dog because he is a good playmate.
2. Bob throws sticks and the dog catches them.
3. I think he is a smart dog.
4. He likes to do the tricks that Bob taught him.
5. Sometimes Bob tries to hide from him but the dog always finds him.
6. I think brown is a pretty color for a dog.
7. His tongue hangs out of his mouth when....
8. He barks at strangers when....
9. When he is hungry Bob feeds him.
10. He is such a lively fellow that Bob calls him "Friskey."

The results of the test are presented in Tables LI and

LII.

TABLE LI

NUMBER AND PERCENTAGE OF BOYS WHO RECOGNIZED EACH
RELATIONSHIP IN THE CLAUSE USAGE TEST

Test Item	III		IV		V		VI	
	No.	p	No.	p	No.	p	No.	p
10	1	1.9	2	3.6	13	18.6	15	21.4
9	6	11.1	19	33.9	22	31.4	33	47.1
8	2	3.7	3	5.4	11	15.7	15	21.4
7	4	7.4	4	7.1	7	10.0	7	10.0
6	..	....	1	1.8	4	5.7	7	10.0
5	9	16.7	30	53.6	39	55.7	46	65.7
4	1	1.9	6	10.7	9	12.9	21	30.0
3	3	5.6	8	14.3	10	14.3	18	25.7
2	14	25.9	32	57.1	44	62.9	45	64.3
1	..	....	5	8.9	7	10.0	12	17.1
0	32	59.3	9	16.1	12	17.1	11	15.7

TABLE LII

NUMBER AND PERCENTAGE OF GIRLS WHO RECOGNIZED EACH
RELATIONSHIP IN THE CLAUSE USAGE TEST

Test Item	III		IV		V		VI	
	No.	p	No.	p	No.	p	No.	p
10	2	3.0	9	14.3	24	41.4	18	31.6
9	14	21.2	27	42.9	40	69.0	31	54.4
8	8	12.1	6	9.5	10	17.2	8	14.0
7	2	3.0	11	17.5	12	20.7	7	12.3
6	..	....	1	1.6	4	6.9	3	5.3
5	23	34.9	37	58.7	47	81.0	42	73.7
4	4	6.1	8	12.7	11	19.0	13	22.8
3	5	7.6	2	3.2	12	20.7	12	21.1
2	18	27.3	35	55.6	43	74.1	32	56.1
1	1	1.5	3	4.8	9	15.5	7	12.3
0	27	40.9	12	19.1	1	1.7	5	8.8

The number of correct responses to certain of the items was very small particularly in the third grade. Although nearly 500 test records are reported the number of each sex in each grade is so small that any trend indicated by the percentages of children who made correct responses would be expected

to be somewhat irregular. There is, however, a fairly consistent increase in the percentage scores from grade to grade. This is particularly true of the boys. In the case of the girls the scores of the fifth grade seem to be extraordinarily high. On most of the items the sixth grade scores of the girls are lower than the fifth grade scores.

A second fact which is apparent from the data in the tables is that there was a marked difference among the test items in the number correctly recognized. The order of frequency of recognition of the ten relationships suggested or implied in the test is 5, 2, 9, 4, 10, 3, 8, 7, 1, 6. Of course other exercises implying the same relationships between pairs of clauses could readily be devised to increase or decrease the difficulty of recognition. The only significance of the data derived from the test used is the evidence of development with advance in school grade.

To secure a single index for each grade for convenient comparison the mean number of correct responses per pupil in each grade was computed. These means are presented in Table LIII.

TABLE LIII

MEAN NUMBER OF CORRECT RESPONSES PER CHILD
ON THE CLAUSE USAGE TEST

Sex	III	IV	V	VI
Boys.....	.74	2.00	2.37	3.13
Girls.....	1.17	2.21	3.66	3.04

The means for all correct responses show a consistent increase from third to sixth grade for the boys, and from third to fifth grade for girls. The grade differences are sufficiently large to be statistically significant in all cases except the difference between fifth and sixth grade girls. The other differences are from 2 to 7.6 times their probable errors.

Growth of Imagination

The compositions of series 5 were written on topics which were specifically chosen to stimulate the children to create a story. In presenting the topics the children were specifically urged to select a topic on which they thought they could create a good story. Some of the suggestions given, it may be recalled, were, "All baby animals are interesting," "I heard the doctor say....'in bed for a week'," etc.

In reading this series it appeared that some indication of a growth in imagination might be secured from the papers. Accordingly the titles used for each of the eight key-sentences suggested were listed by grades. The complete classification is presented in Tables LIV and LV.

TABLE LIV

TITLES GIVEN TO BOYS' COMPOSITIONS IN SERIES 5
CLASSIFIED BY GRADE AND BY KEY-SENTENCE

Key-Sentence Number*	III	IV
1	None (4) My Story	None (2) To the Store The Doctor
2	None (10) How To Make Stories	A Horseback Ride The Horseback Ride Pony Ride What Happened When Uncle Ben Promised Uncle Ben's Promise
3	None (2)	
4	None (4) Stories Story Telling	None (4) The Water The Deep Water At the Beach A Knee Deep Wading in Water The Wade I Had What I Thought (2) How My Pants Got Wet It Was No Fun
5	None (3) Telling Stories	None (1) Key-Sentence Look Both Ways Before Crossing the Street I Look Both Ways Before Crossing the Street
6	None (5) Telling Stories (2) A Flat Tire	None (1) A Flat Tire
7	None (1)	Key-Sentence (2) The Doctor (2) How I Got Sick What the Doctor Said When I Was Sick How I Got Sick

TABLE LIV (continued)

Key-Sentence Number	V	VI
1	None (1) A Good Time A Hard Time Fighting A Fast Clock The Bicycle Ride John and the Cookies A Robber A Scare The Mystery Something Happen "I'm Sorry"	None (12) Mother and Father A Dream Mother's Long Visit at the Store You Cannot Depend on Mother She was Only Gone a Minute Only Gone a Minute Fooling Me Kidnaped
2	A Horseback Ride (2) The Horseback Ride	None (3) The Adventure Were You Ever Fooled?
3	A Good Lesson	None (1)
4	None (1) Key Sentence A Swim Wading Deep Water Lots of Fun My Luck A Dangerous Swim A Narrow Escape All Wet (2) Aw Heak!	None (2) A Good Story Wading Swimming The Pool Out in the Country Wading With a Turtle Floating and Dreaming Along A Frightened Boy My Fault When I Got Wet
5	None (1) A Story My Story Mother Told Me To Look Both Ways Crossing the Street Safety First (2)	None (1)
6	In the Woods Lost in the Woods (2) Lost in the Fields	None (3) Lost in the Woods

TABLE LIV (continued)

Key-Sentence Number	III	IV
8	None (1)	None (1) Key-Sentence My Rabbit

- *1. Mother said that she would be gone only a minute.
- 2. I thought the water was only knee-deep when I started to wade.
- 3. Uncle Ben had promised us a horseback ride.
- 4. Daddy said that we might get out of the car while he changed a tire.
- 5. I thought all berries were good to eat.
- 6. Mother had told me to look both ways before crossing the street.
- 7. I heard the doctor say, ".....in bed for a week."
- 8. All baby animals are interesting.

Note: One paper was given a title but could not be clearly identified with any suggested key-sentence. This title was, "The Live Saver." Another paper which could not be identified with its source of stimulation had no title.

TABLE LIV (continued)

Key-Sentence Number	V	VI
7	Fairy Tales What the Doctor Said Five Days in Bed In Bed for a Week (3) When I Ran Away Castor Oil Too Much Candy A Joke On Me	None (1) A Boy's Diary A Dreadful Week Hard Luck For Me A Close Shave
8	None (1)	None (3) Jungle Animals

TABLE LV

TITLES GIVEN TO GIRLS' COMPOSITIONS IN SERIES 5
CLASSIFIED BY GRADE AND BY KEY-SENTENCE

Key-Sentence Number*	III	IV
1	None (16) My Story (4) Telling Stories Tell Stories Mother	None (4) Key-sentence (2) What Mother Said What Happened to Me What I Did While Mother Was Away What Happened While Mother Was Gone Mother at the Store When Mother Went Down Town A Minute is Gone Gone Only a Minute
2	None (6) A Story My Story A Horseback Ride The Horseback Ride What Uncle Ben Promis- ed Us	A Horseback Ride Horseback Riding The Boy Scouts
3	None (1)	None (1) Key-sentence Berries Discovering Berries
4	None (1) A Story My Story Swimming Wading A Little Tale	None (3) Key-sentence (2) True Story Wading Starting to Wade At the Beach A Lesson Walking Too Far in the Water How I Fell in the Water
5	None (4)	Crossing the Street What Mother Said Look Before Crossing the Street

TABLE LV (continued)

Key-Sentence Number	V	VI
1	None (1) Key-sentence My Story (3) A Burn Clean-up Day A Scare The Pies My Birthday Betty's Surprise Mother's Surprise Party Mother Going Out When Mother Went Away Only a Minute Just a Minute	None (5) A Surprise A Scare Explorers Trying to Make a Cake The Disappearance of my Mother Mother Disappears Gone Just a Minute Marjorie Has a Good Time All That Happened in One Minute A Minute Too Late How the Minutes Fly
2	Uncle Bim and My Aunt Riding Horseback	None (1) The Horseback Ride We Never Got
3	None (1) Key-sentence A Story (2) Eating Berries	Poison Berrys What Wild Berries Do The Time I Was Fooled
4	My Story A Wonderful Day An Accident At the Seashore My Surprise Bad Luck	None (2) Going in Wading A Narrow Escape An Exciting Adventure Knee-Deep An Awful Surprise Mis Fortune and His Visit to Me
5	An Accident What I Got	None (1) A Disobedient Child Careless
6	None (1) A Flat Tire A Happy Day A Scare Lost in the Woods My Grandmother's Surprise	None (3) A Pleasant Walk Lost in the Woods A Narrow Escape When Daddy Got a Flat

TABLE LV (continued)

Key-Sentence Number	III	IV
6	None (3)	About the Car A Flat Tire The Flat Tire What We Did While Daddy Changed the Tire While Daddy Was Out Changing a Tire
7		None (2) Key Sentence A Week in Bed
8		None (1)

*See footnote Table LIV, p. 114.

Note: Three papers were given titles but could not be clearly identified with any suggested key-sentence. These titles were, "Why Jean Had To Go In," "An Old Hollow," and "The Horseback Ride."

TABLE LV (continued)

Key-Sentence Number	V	VI
7	My Story When I was Sick I Heard Doctor Say Just a Cough	My Brother Billy
8		None (1) Baby Animals Interesting Baby Puppies

The simplest and most obvious analysis to be made of the data of Tables LIV and LV is a comparison of the percentage frequencies of the compositions having a title. These percentages are shown in Table LVI.

TABLE LVI
PERCENTAGE FREQUENCY OF COMPOSITIONS IN
SERIES 5 HAVING TITLES

Sex	III	IV	V	VI
Boys.....	21.1	77.5	92.0	49.0
Girls.....	45.6	76.6	92.9	69.8
Both.....	35.8	77.0	92.4	58.5

There is a striking increase in the number of compositions which were given titles in the third, fourth, and fifth grades. There is at the same time an abrupt and marked decrease in the sixth. Both trends are equally evident in the case of the boys and of the girls. Aside from the abrupt change of the trend in the sixth grade, it would seem that the older children quite more frequently than the younger recognize the need for some title for their story and make the attempt to supply it.

As a possible explanation for the irregular trend in the sixth grade it was thought that some peculiar condition in the training or in the school habits of the children of one particular room might have produced the unexpected and unexplained performance of the sixth grade. To test the hypothesis the papers were re-examined and the results for each of three rooms were tabulated separately. The percentages of titles given to

the compositions from the three rooms were, Boys, 58.8, 55.0, 35.7; Girls, 50, 68.4, 87.5; both 56.0, 61.5, 63.3. Although there were some differences among the different rooms, the differences were certainly not sufficiently great to explain the showing of the sixth grade group as a whole. Whatever the cause may be for the irregularity in the use of titles does not appear in the data available.

In addition to the distinction between title and no title as an indication of the children's power of imagination, two types of title are sufficiently standardized to permit a comparison of the number used in each grade. Repetition of the sentence given to suggest a story occurred ten times in the fourth grade and three times in the fifth. A second type of title such as "A Story," "True Story," "Story Telling," etc. was used 28 times. Seventeen of this type of title were used by third grade pupils, nine by fifth, and one each by fourth and sixth. Although of course this evidence is far from conclusive, it nevertheless is entirely consistent with the evidence presented by the increasing frequency of giving some title to the story.

It is of course not feasible to make a quantitative comparison of the degree of imagination found in the titles used in the different grades. However, any competent observer who examines the titles listed in Tables LIV and LV will agree that varying degrees of imagination are expressed in the titles used. For convenience and as an illustration of a crude scale of imaginative quality in titles the following is

suggested.

1. Key-sentence. Since the initial sentence for each story was given to the pupils, its use as a title may be regarded as showing a minimum of creative imagination on the part of those who merely copied it.

2. General, indefinite caption designating the composition a "story." Reference was made a number of times in introducing the topics to a story, writing an interesting story, etc. The use, therefore, of A Story, or My Story as a title would take a low rank on the scale of imagination.

3. Simple matter-of-fact name. Examples of this type are, The Doctor, My Rabbit, and A Robber.

4. Name with some suggestion of related activity or episode. Examples: The Wade I Had, What Happened When Uncle Ben Promised, John and the Cookies.

5. Suggestion of an interesting episode with no indication of its nature. Examples: It was No Fun, Aw Heak!, I'm Sorry.

From the point of view of some such hierarchy of imaginative quality an examination of the complete lists of titles will yield the judgment that the degree of imagination represented in the titles does increase with the advance of the writers in school. Certainly the titles used by the third grade writers show very little imagination. Differences between other consecutive grades in degree of imagination shown in the titles used are not so pronounced as between the third and fourth. Within each of the three upper grades the variation is great. This fact increases the difficulty of comparison.

A careful comparison, however, in some instances at least shows clear superiority of the sixth grade over the fourth. A good example of this superiority is shown in the titles of boys for their stories suggested by, 'I heard the doctor say

....in bed for a week." Another example is the list of titles used by girls for their stories suggested by, "Daddy said that we might get out of the car while he changed a tire."

The meagerness of the data available must be admitted, but within the limits of reliability of those data, it appears that there is a considerable development between grades III and IV in imagination as shown in titles given to stories.

Summary

Evidence was secured from children's compositions which showed that they experience real difficulty in apprehending certain words. They have learned from experience with oral speech most of the words which they require in writing, yet there are a significant number of word complexes which have not been properly analyzed by some children in the elementary school. These unanalyzed verbal symbols were found to be at least four different types: improper compounds, words having attached prepositions, undifferentiated word complexes, and substitutions. The older children gave some evidence of initiative in expanding their vocabularies by the pretentious use of words. In the degree of generality of meaning of nouns the data analyzed showed a distinct development between grades three and six. The older children used a smaller proportion of the more concrete terms than the younger and a much larger proportion of the more abstract meanings.

A measure of ego-centrism was sought in the frequency of the use of I as the subject of the initial sentence of the

compositions. The data show that approximately 55 per cent of the compositions written by the third grade begin with an assertion of I, whereas only 25 per cent or fewer of the sixth grade papers were so intimate and personal in their first statement. Within the limits of the validity and reliability of the data available, there is a marked decrease in ego-centrism between the third and sixth grades.

Ability to recognize the relationship between clauses implied by the context was tested by an exercise constructed for the purpose. The results of the test indicate a significant development in the recognition of the relationships requiring the use of such connectives as but, because, etc.

In power of imagination as reflected in the titles given to a story the children in grades above the third were clearly superior to the children of the third grade. Development from fourth to sixth appeared to be small but discernible. The study in this respect is recognized as only a suggestion of the possibilities which more comprehensive and extended investigation might realize.

CHAPTER VII
CONCLUSIONS AND IMPLICATIONS

The data collected in the investigation herein reported were analyzed with the purpose of discovering the nature and extent of the development of written expression among children of the elementary school grades. Such a comprehensive problem could not, of course, be solved by one investigation even if it were many times as extensive in scope as the one under consideration. The evidence assembled and reported in preceding chapters does, however, point more or less clearly to certain trends in the development of children's written language.

The interpretation deemed most important, though quite the most difficult to make, is the relationship between developing language and maturing mental life. Those relationships are far from adequately developed in the present study, but certain implications and inferences seem to be sufficiently well justified by the evidence reported to warrant setting them forth to be subsequently corroborated, supplemented, modified, or completely refuted, as later investigations may require.

The principal facts revealed by the present investigation support the conclusion that there is measurable development in written expression between the third and sixth grades of the elementary school. Development occurs in amount of expression which a given topic elicits, in certain aspects of sentence structure, and in a number of aspects of content. All three of

the courses of development just mentioned may be regarded as evidence of developing mental life. Increase in amount of expression is not to be expected without increase either in extensity or intensity of experience and increased freedom from the inhibitions imposed by limited practice in writing. Development in the forms of expression as indicated in changes in sentence structure and in the relative proportions of various forms used signifies growth in the characteristic patterns of the organization of thought. Evidences of growth in the content of expression are evidences of growth in the content of thought.

The principal thesis which the results of the present study suggests is that the analysis of children's compositions may be made to yield significant facts and implications which supply promising suggestions for the formulation of a systematic course of instruction in written language.

Knowledge of the normal course of development uninfluenced by the numerous factors of instruction present in the complex society in which the child necessarily grows up, would provide a most valuable guide for the formulation of a program of instruction. It is of course quite impossible to secure full knowledge of how language would develop under conditions of passive absorption unaffected by any efforts, intentional or incidental, at instruction. Those efforts are directed toward him beginning at an early age. The affectionate cooing of a mother to her babe in arms is a tremendous stimulation to a very young infant to make early efforts in the direction which leads to speech.

When the child has developed sufficiently to understand the simplest language, he is very frequently approached by adults through their most convenient and most satisfactory medium of social expression, namely speech. He is more or less constantly plied with questions, suggestions, demands, etc. throughout his waking hours. Informal and incidental instruction in language, therefore, is inherent in the environment of a child during his whole career.

It has been feasible, however, to secure, in spite of the multiplicity of complicating factors, certain clear evidences of steps of development in written expression during the elementary school period. It is the purpose of the present chapter to set forth certain lines of training which seem desirable in light of the trends of development revealed by the facts of the investigation.

A very considerable amount of additional investigation including extensive experimental use of the constituent materials and exercises will have to be made before a psychologically determined course will be achieved. The implications recorded here are offered merely as an outline of what the complete course should be. Numerous other items no doubt will have to be added. The significance of some of those incorporated herein may prove to be greater or less than is now apparent. The guiding principle on which the suggestions of the succeeding sections of the chapter are based is that by anticipating the specific steps in the course of language development systematic instruction in the understanding and use of those forms and

usages required at each stage of growth can contribute to mental efficiency by keeping the development of the instrument of expression abreast of the requirements for expression.

An illustration may serve to clarify the principle. The halting, stammering confusion in expression of early adolescents, manifested in "Say listen," "O, well," "Well, anyway," "O, you know what I mean," etc. does not necessarily mean a paucity of ideas, but certainly it does indicate a language ability inadequate to the impelling demand for expression. Very possibly the profuse use of slang does express well enough some vaguely defined urge to be identified with the babble of the "bunch" or perhaps it expresses an entirely unrecognized impulse to attract coveted attention to the speaker. No doubt conformity to the prevailing style of the time and of the social group is a significant motive, but it seems clear enough that the early adolescent has in general developed a need for language expression noticeably in excess of his ability to use language.

If the hypothesis advanced in the preceding paragraph is valid, it would appear that there is a peculiar function in language training for the elementary school to perform. That function would be to anticipate the inevitable course of development in the use of language both in oral speech and in writing, and to cultivate persistently and systematically in each stage of development the use of language which will aid, at least not impede, the child in his thought. When the exact nature of the development of language ability is known, the forms peculiar to each stage can be placed sufficiently early in the school course

to reduce appreciably, if not remove entirely, the intellectual handicap of a language instrument which is inferior to the function it is required to perform.

Reference to the instrument of language is not intended to imply that language is an objective tool used by the mind as a hammer is used by the hand. The relationship is conceived to be considerably more intimate, more nearly analogous to the skill which may be used by the hand in operating a mechanical tool. The relationship, therefore, is interacting: the use of language clarifies thought; thinking refines, qualifies, elaborates expression.

The results of the present investigation suggest a course of instruction in language which may for convenience in thinking be organized under four main divisions: (1) growth in word usage, (2) control over gross elements of sentence form, (3) refinement in the internal organization of sentences, and (4) general considerations. The learning which may be expected to result from the materials and exercises suggested in the different divisions will undoubtedly overlap considerably. Furthermore, no specific grade placement of materials is yet possible except upon a cut-and-try basis. It is reasonably certain that some aspects of each division will require consideration in each school grade in which children express their ideas in writing.

Growth in Word Usage

In the division of the instructional program considered under the heading, growth in word usage, four lines of develop-

ment may be analyzed from the results of the study reported in preceding chapters. The first of these to be considered is the discrimination of certain particular words from the total verbal complex of oral speech. Evidence submitted in Chapter VI showed that children do experience real difficulty in apprehending very simple and very frequently used words. The difficulty appears in some instances to be a faulty perception which leads to a corruption of words as in the use of hasta or alota; in other instances it appears that the misapprehension is a complete misunderstanding of meaning as in the use of must of, once and a while, where is (whereas).

It is hardly credible that children should continue indefinitely in misapprehending common words without suffering intellectual confusion, social embarrassment, and the handicap of inefficient habits. As a means of facilitating mental operation it seems clear that all difficulties in the discrimination of individual words in oral speech should be anticipated as far as possible and the accepted and conventional form be established as early as possible. The essential emphasis here is to avoid learning socially unacceptable forms which later must give place to new learning of the conventional forms. No doubt most of the training implied should be done before written expression is undertaken at all. The fact that evidence of misapprehended words appears some time after children have begun to write intensifies the demand for most critical scrutiny of early efforts at writing to detect error at its first appearance.

The second phase of growth in word usage to be presented

is the discriminating use of connectives. The evidence bearing upon this aspect of language development is not as clear as might be desired, but it is quite sufficiently clear to indicate that common coordinate conjunctions, for example, are frequently used in a way to depreciate their meaning very seriously. The abstractness of their meanings may explain the difficulty of learning their correct use, but there is no justification for failure to teach their meaning since they are so frequently used and misused in children's written discourse.

In frequency of occurrence and, but, and so comprised substantially all of the coordinate conjunctions connecting clauses found in the study. The abuse of and was most conspicuous in the run-on sentences and in being used as the initial word of a sentence. As was pointed out in Chapter V both these types of misuse are probably to be accounted for in the child's appreciation for the continuity of language expression and in the accompanying need for a concrete symbol of connectedness. He has yet much to learn concerning the connectedness of context as was shown in the results of the clause usage test reported in Chapter VI. It is entirely possible that certain uses of and, particularly those of the type reported under compounds of unrelated members in Chapter V, are used not to connect in definite relationship two members but instead distinctly to separate them. That is, the child upon concluding one proposition may set down an and somewhat in the sense in which a halting lecturer repeats "Uh," "Ah," etc. It is, in such a case, not a connective but a meaningless mark of an interval

between one concentration of attention upon the proposition written and the succeeding effort to assert a second proposition.

Similarly but was found in sentences in which the relationship was anything but that stated in the connective used. So was frequently found to express the vaguest possible meaning aside from serving to provide a mental "breathing spell."

The end to be achieved would seem to be to give children at an early stage in their schooling a perfectly clear conception of the function performed by and in the elaboration of thought by addition of ideas, and by but in contrasting ideas. No doubt a very considerable amount of practice would have to be provided in order to give precise meaning to connectives and to establish reasonably reliable habits in their use.

A third phase of development in word usage is the perfectly obvious one of general vocabulary building. No particular effort was made to determine either the extent or nature of the development of vocabulary of the subjects studied but two specific items of evidence have a distinct bearing upon the problem. Those items are the decrease in the ego-centrism of expression and the increase in the relative frequency of usage of abstract nouns.

The dominance of the self in the thinking of the very young writer was clearly indicated in the section on ego-centrism in Chapter VI. The decline of the ego in relation to the frequency of use of other subjects of thought was demonstrated to be very rapid between the third and sixth grades. Assuming

the desirability of cultivating the wider range of interests, it seems clearly evident that the tendency in the child's thinking toward greater emphasis on other persons, things, places, actions and events, that is, a greater objective outlook in general, should be cultivated as extensively as possible. The obvious implication of the apparent desirability for stimulating objective thinking is that abundant opportunity must be provided for children to do thinking and to express their thoughts about meaningful, impersonal subjects. That is, if the reasoning up to this point is valid, the subject matter for language training is the subject matter for general intellectual training, the so-called content subjects: literature, history, geography, and natural science. There are of course abundant reasons for including also experience in writing personal letters and in relating incidents with whatever degree of embellishment the writer's imagination may suggest.

The second bit of evidence bearing upon the general vocabulary development is the evidence that children during the last three years of the elementary school period incorporate in their written expression a significantly increasing proportion of nouns possessing the higher degrees of generality of meaning. This fact parallels in significance the broadening range of interests and subjects of thought pointed out in the preceding paragraph in connection with the decline of ego-centrism. Since the course of development is markedly in the direction of expanding generality of meanings, it should be expected that the school would provide every opportunity and stimulation for fa-

cilitating that development. By implication experiences in both reading and writing which genuinely tax the child's vocabulary should be provided.

A final suggestion for training in the use of words comes from that section of the study dealing with slang. Slang phrases in the written expression studied appeared almost exclusively in the fifth and sixth grade writing. Its significance was interpreted as being an effort at emphatic statement, an attempt to raise in prominence one idea or proposition in comparison with others. If the interpretation suggested is correct, the child's motive and purpose are certainly commendable enough.

Interest in expressing an idea emphatically should be capitalized to motivate the learning of new words and new orders of words. In general the new interest should be stimulated to grow into a pride in the discriminating use of words and phrases chosen with a high respect for nice distinctions in meaning.

Control Over Gross Elements of Sentence Form

Form in language is fundamentally important only because of its relation to meaning. It is of course impossible to express highly involved and qualified relationships of ideas without using correspondingly elaborated forms of expression. The proposition previously mentioned applies in the development of sentence form as in the acquisition of control over words, namely, that facility and efficiency in thinking require a sufficiently matured instrument of formulation and expression to

avoid confusion, distraction, inhibition, and waste of mental energy.

The logical first consideration in planning a program for cultivating control over sentence form would seem to be evidences of sentence sense. Four types of data were collected to give evidence on the development of sentence sense. Two of these, dangling phrases or non-sentence groups of words and the cases of incorrect designation of sentences, were found only once or twice in a hundred sentences and in approximately the same proportions in all grades. They, therefore, were in the present study of no value in indicating development. The cases of omission of period and capital letter were sufficiently numerous to challenge attention but no improvement was clearly discernible in either school. One significant item did appear in a comparison of the performance of the two schools. It is entirely possible to reduce the omissions of period and capital letter to a percentage of the total number of sentences as low as 5 to 10. It remains yet to be explained why the sixth grade children showed no improvement over the third in this respect. The only significant evidence of development in sentence sense found in the investigation was the marked diminution in frequency of occurrence after the fourth grade of run-on sentences.

The chief implication for teaching contained in the data on sentence sense is that the frequency of failure to express complete sentences or to designate clearly sentences which are clearly formulated may be substantially reduced. Among the

children studied it must be admitted that on the whole the evidence indicates well developed sentence sense. Emphasis on the desirability of clarity of conception and of precision of statement, however, are clearly in order at all stages of language development.

Extension in length of sentences is not itself desirable. Long sentences may serve their intended function very badly just as short sentences may fail to provide adequately for nice refinements in conception. In so far as increase in length of sentences represents clearly recognizable modification of essential ideas, it is a mark of development in power of conception as well as in ability in expression. The end to be sought with reference to length of sentences is then, not merely an extended agglomeration of words but increased span of attention and increased power of conception in the organization of ideas.

The program of training implied by the foregoing statements involve understanding the function of modifiers and practice in their use. It is, of course, not to be expected that young children will be extensively schooled in the niceties of grammar but that they shall recognize clearly the functions performed by word and phrase modifiers and have abundant opportunity to use them.

Directly parallel with extension in length of sentences may be considered the increased proportion of more highly elaborated sentences in the total discourse. The data secured in the investigation showed trends in development to include an

increase in the percentage of sentences which contain noun and adjective clauses. Among the subordinate clauses used the percentage of adverbial clauses declined with increasing school grade, the percentage of noun clauses remained stable, and the percentage of adjective clauses increased. The ratio between the number of coordinate clauses and the number of subordinate clauses indicated a substantial relative increase in subordination of propositions.

Again let it be asserted that no worthy end is served merely in seeking to multiply complex and involved expression in itself. The object sought is sufficient skill in the use of the language instrument to facilitate rather than inhibit the thinking of which the child may be capable. To serve the last named purpose the data available suggest specific training in the use of adjective clauses and in reducing loosely related coordinate propositions to more precisely defined subordinate relationships. There are, of course, a variety of ill conceived types of construction such as, "An inning is when...." which should be eliminated as speedily as possible.

Refinement in the Internal Organization of Sentences

The significance of developing the content of language expression has been implied, if not explicitly stated, in most of the two preceding sections of the chapter. There are at least three items of additional evidence which point toward the possibility of materially enriching the meaning of children's written expression and of facilitating their higher mental processes by systematic training in the use of certain refinements

in language form.

In the first place may be considered variety in forms of expressing essentially the same idea or proposition. The first and most obvious suggestion which appears in the results of the study and which may be related to the immediate issue is the elimination of monotonous repetition discussed in Chapter V as persistence of form. A relatively small number of cases were found and these were largely confined to the third grade. Nevertheless they indicate some need for training in critical appreciation of the effectiveness of variety in expression.

The two psychological values to be sought in variety of expression are discrimination of fine shades of meaning and emphasis. Particular examples of opportunities to facilitate growth in language ability are the use of inverted order and divided quotations. Although among the examples found the frequency of occurrence was much greater in the upper grades, both forms were found in the third grade. Since the course of development is toward a greater use of inverted order and divided quotations, the desirability of stimulating children to use them more extensively seems evident.

No specific count was made of different forms which express essentially the same relationship, for example, "If I had known...." and "Had I known...." It seems clear, however, that such variations offer additional opportunity for cultivating an appreciation for nicety of expression and an increased facility in the use of refined language forms.

The use of certain participial phrases in lieu of complete clauses was pointed out in Chapter V as a mark of development in refinement of expression. The fact that the aforementioned uses of participial phrases occurred very largely in the upper grades points out distinct opportunities to initiate younger children into the use of the more highly developed form.

A striking opportunity for improving the language instrument is afforded in all instances of misplaced modifiers. As was pointed out in Chapter V word, phrase, and clause modifiers were misplaced in the writing of all grades from third to sixth inclusive. Since the sentences studied were not changed from the form in which they were originally written, the extent of the children's ability to reconstruct their sentences and give the modifiers a more advantageous position is not known. Exercises in comparing the meaning of statements with modifiers in various positions in the sentence should cultivate critical appreciation of the function of modifiers and the significance of their position in relation to the word they modify.

General Considerations

By inference many lines of training similar to those suggested for written language should be incorporated in the program of training in oral speech. This raises the problem of how effective school training may be in modifying habitual practices in either oral speech or written expression. Fur-

thermore, there is the problem of how improvement in either oral or written language affects usage in the other form.

Self-criticism as a general practice in all written expression probably has self-evident value. It would seem to have particular application in the choice of words, in variety of sentence form, and in determining the relative position of various members comprising a sentence.

Certain items of data, notably the unanalyzed word complexes and the run-on sentences suggest that their origin is probably in habits of oral speech. Since written expression lends itself more readily to criticism and reformulation than does oral speech, a very considerable amount of writing would be justified for purposes of critical study alone. There are other reasons, however, why written expression should be extensively cultivated.

A number of factors contribute to the natural advantage of oral speech over written expression. A child speaks with confidence and facility for years before he is able to write, and throughout his lifetime he speaks much more frequently than he writes. He finds in all ordinary circumstances that it is easier and more convenient to speak than to write. Oral speech is more rapid and adapts itself more readily to the rate of thinking than does the less fluent form of writing. Finally, in spoken language there is the extraordinary stimulation of a potential auditor and a probable, competitive speaker. Thus the factors of primacy and frequency of practice, ease, convenience, fluency, and the presence of direct social stimulation

all combine to place oral language in a favored position in learning. On the other hand its informal, transitory character, and the readiness with which it becomes prolix and diffuse are factors which from an educational point of view give oral speech marked disadvantage in comparison with the more formal, deliberate, exacting, and permanent character of writing.

The preceding paragraph is set forth to substantiate in general terms the proposition that abundant practice should be provided for training in written expression.

Proficiency in the use of language is not an attainment which just happens, nor is proficiency in thinking an achievement unaffected by language ability. Thinking and the use of language are two intimately related aspects of human behavior. Both deserve major emphasis in the school program: the former in its own right, the latter as an indispensable instrument in carrying on the higher forms of thinking.

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